

University of Alberta Library

FALL 2016

VOLUME 74.3



0 1620 3612835 1

BLUE JAY



QH
1
B65
v.74:
no.3
2016

SCI/TECH



UNIVERSITY OF
ALBERTA

EX LIBRIS UNIVERSITATIS ALBERTENSIS



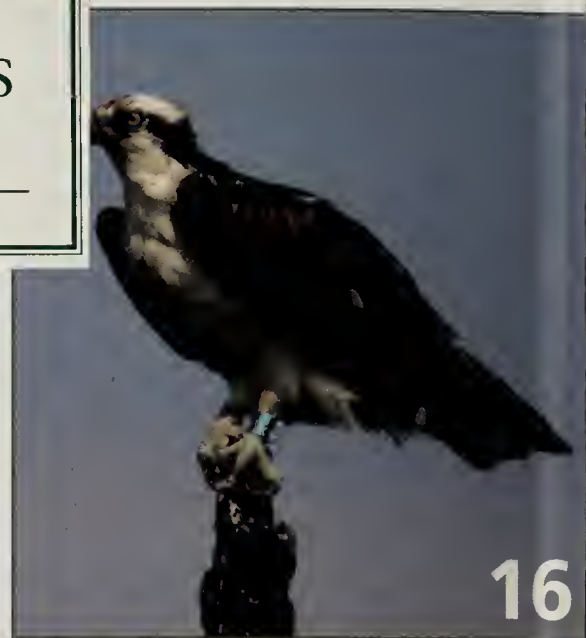
6

Ferns bring a tranquil pleasure to their spectators, which is different to that provided by the bright colours that attract us to many flowering plants. See page 6 for a new, annotated list of Manitoba ferns.



12

In May 2016, Manomet's Shorebird Recovery Program's Habitat Management Team co-hosted a "Shorebird Ecology, Conservation, and Habitat Management workshop" in Chaplin, Saskatchewan.



16

Stuart Houston reports two new Saskatchewan raptor longevity records received in 2013 — his 7th year of banding birds.



28

The time when a young bird leaves the nest until it becomes independent is an under-studied phase of the annual cycle of birds, particularly of hosts of brood-parasitic cowbirds. This article documents five observations of putative hosts feeding fledgling Brown-headed Cowbirds.



32

European Starlings became established rapidly across the Prairie Provinces and beyond, despite early predictions that "the area of the Great Plains, with its scarcity of suitable nesting sites, will undoubtedly retard the westward advance."



46

Nature Saskatchewan Board member Donna Bruce has a long-time connection with Prince Albert National Park, and the Waskesiu River is one of her favourite places in the province.

What's inside

5 Wolseley History a Highlight of Spring Meet
Jordan Ignatiuk

6 A New Annotated List of Manitoba Ferns (Spring, 2016)
Richard J. Staniforth

12 Shorebirds Ecology and Conservation Workshop Convenes at Chaplin Lake
Monica Iglecia, Brad Winn, Brian Harrington, Jordan Ignatiuk, Christy Morrissey, Lori Wilson

16 Two of Saskatchewan's Oldest and Most-studied Raptors
C. Stuart Houston

19 FROM THE GROUND UP: Ponteix Rancher Committed to Raising Environmental Awareness
Tracy Harrison for the South of the Divide Conservation Action Program Inc.

22 Red-eyed Vireo Mimics an Olive-sided Flycatcher
Ron Jensen

24 Nature Saskatchewan Fall Meet 2016

28 Additional Observations of Putative Host Species Feeding only Cowbird Fledglings
Spencer G. Sealy

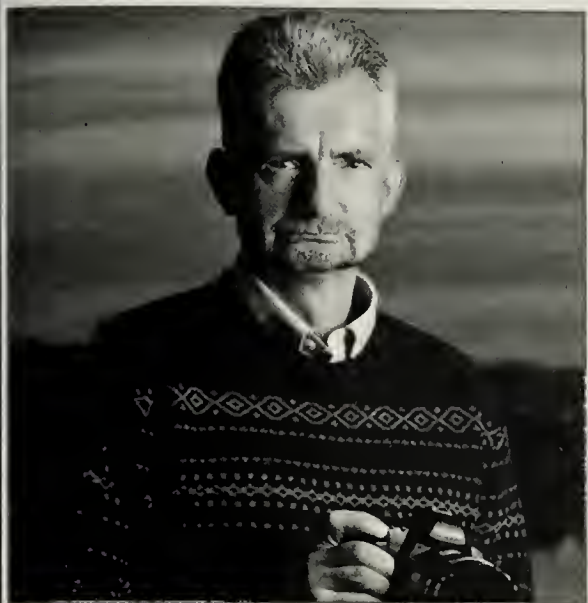
32 History of the European Starling in Manitoba and Nearby States and Provinces
Peter Taylor, Randall D. Mooi & Robert J. Parsons

44 Changes to our Publications and Membership Structure

46 Human Nature
Donna Bruce

47 Mystery Photo

FROM THE PRESIDENT



Dr. Branimir Gjetvaj



Photo credit: Richard Staniforth

ON THE FRONT COVER

The leaf buds ('fiddleheads') of an Ostrich fern (*Matteuccia struthiopteris*). Most ferns characteristically have cured buds that protect them as they push their way up through the soil in the spring. Those of the Ostrich fern will be familiar to many naturalists because they are edible and much sought after. The fiddleheads of many other ferns are not edible, because they may contain carcinogens or they may be too small.



Photo credit: Glen McMaster

ON THE BACK COVER

"This is a great year for blue-eyed grass on the prairies! On our prairie, in south-central Manitoba, they nod and twinkle like fallen stars, reflecting the blue sky from which they may have fallen. Here is one clump! Our son, Glen McMaster (Regina), took this photo."

- Ardythe McMaster, near Treherne, MB.

Dr. Branimir Gjetvaj

President, Nature Saskatchewan

Dear Nature Saskatchewan members,

I would like to thank you for your trust in giving me the opportunity to serve as the President of our society over the next two years. It is a challenging task and I will do my best to fulfill your expectations. The President's role is not an executive one, as we employ an Executive Director to manage and administer day-to-day activities. Rather, my role is to lead the Board of Directors to govern and set long-term actions to help us achieve the society's objectives. Personally, I also believe that my role is to ask questions and stimulate discussion.

The mission of our society is to inspire people to appreciate, learn about and conserve Saskatchewan's natural environment. Wide open spaces on the prairies and boreal forest, combined with low density of human settlements, give a false impression that land, water and resources are limitless. The economy of our province is based on resource extraction and agricultural activities that impose a large amount of pressure on the land, water and organisms we share the space with. The economy based on increasing resource extraction and mass production led to the economy of mass consumption. However, there are physical and ecological limits to consumption. Our collective activities have had a negative impact on the environment and its plant and animal inhabitants. I believe that we have to be forward-looking and advocate for the economy that improves the well-being of our communities while minimizing the

impact on the environment. We need to address the environmental challenges facing our society in a holistic way; to look for solutions through solving biological problems while not neglecting the social impact imposed by those solutions.

My official training is in biology/ecology and genetics. I am a keen photographer and I have been using my photography skills to promote the appreciation and protection of natural environments and cultural legacies. In 2013, I received Michelle's Prize — jointly awarded by the Canadian Environmental Law Association and the University of Saskatchewan — in recognition of my extensive involvement with environmental NGOs and the use of photography to advance environmental conservation. I have served on the Boards of conservation organizations in Saskatchewan and Alberta that advocate for nature conservation and creation of protected areas to minimize biodiversity loss. I have been with Nature Saskatchewan since 2003, and served as the Education Director for three years. What attracted me to this organization is the strong component of educational programs and society efforts to promote participation in nature-related activities such as bird watching. In combination with a well-designed and implemented public outreach program, I believe that activities of Nature Saskatchewan will increase public interest and motivation to admire the beauty of nature, and conserve it for our benefit and the benefit of future generations. I am looking forward to many challenges and successes while serving as the President of our society. 🐦

Blue Jay, founded in 1942 by Isabel M. Priestly, is a journal of natural history and conservation for Saskatchewan and adjacent regions. It is published quarterly by Nature Saskatchewan.

Editor: Annie McLeod
3017 Hill Avenue
Regina, SK S4S 0W2
E-mail: bluejay@naturesask.ca

Editorial Information

Blue Jay welcomes all submissions, preferably by e-mail (although hand-written or typed manuscripts will be considered to accommodate those who do not have access to computer equipment), polished or in need of some editorial assistance. All items for publication should be sent to the editor electronically (in a Microsoft Word document) by e-mail or on CD. Hard copies and CDs can be mailed to the editor at the address above.

Submission deadlines

January 1 for the Spring issue,
April 1 for the Summer issue,
July 1 for the Fall issue, and
October 1 for the Winter issue.
For detailed information, please see the "Guidelines for Authors" under the Publications section of the Nature Saskatchewan website.

www.naturesaskatchewan.com

Nature **SASKATCHEWAN**

Board of Directors

President
Branimir Gjetvaj
Vice President
Hamilton Greenwood
Secretary
Nicole Dunn
Treasurer
Ed Rodger
Past President
Donna Bruce
Honourary President
Gary Seib
Conservation Director
Lorne Scott

Directors
Amy Wheeler
Ken Ludwig
Martin Boucher
Robert Wilson
Vladimir Kricfalusy

Office & Program Contacts

Executive Director
Jordan Ignatiuk
Species at Risk Manager
Rebecca Magnus
Conservation & Education Manager
Marla Anderson
Communications Manager
Ellen Bouvier
Office Coordinator
Becky Quist
Habitat Stewardship Coordinator
Kaytlyn Burrows
Habitat Stewardship Coordinator
Ashley Fortney
International Piping Plover
Census Coordinator
Alan Smith
Turkey Vulture Tracking Program
Dr. Stuart Houston

Main Office

Nature Saskatchewan
206 – 1860 Lorne Street
Regina, Saskatchewan S4P 2L7

Publications

Blue Jay Editor
Annie McLeod
Special Publications Editor
Anna Leighton

Contacts for Local Societies & Affiliates

Fort Qu'Appelle Nature Society
Keith Stephens
Indian Head Natural History Society
Irv Escott
Kelsey Ecological Society
Kathleen Pitt
Nature Moose Jaw
Lorna Arnold
Nature Prince Albert
Jim Bahr
Nature Regina
Dale Hjertaas
Neudorf Trails &
Wild Bird Sanctuary Society
Keith Gerstner
Saskatoon Nature Society
Marten Stoffel
Southwest Naturalists
Janet Payne
Weyburn Nature Society
Val Thomas
Wolseley Nature Society
Richard Solberg
Yorkton Natural History Society
Geoff Rushowick
Yellowhead Flyway
Birding Trail Association
Martin Phillips
Meadow Lake 'Woodlanders'
Junior Forest Wardens
Neil Marsh
Friends of Wascana Marsh
Ramona Clarke

WOLSELEY HISTORY A HIGHLIGHT OF SPRING MEET

Jordan Ignatiuk
Executive Director, Nature Saskatchewan

Nature Saskatchewan's members met for the weekend of June 17 to 19, 2016 in the beautiful and historic community of Wolseley.

The Town Hall, known locally as 'The Opera House,' served as the gathering place for registration on Friday night. The program kicked off with greetings from the local society and the deputy mayor of Wolseley. The guest speakers for the evening were Marla Anderson, Important Bird Area coordinator for Nature Saskatchewan, and Kelsey Marchand, a University of Regina graduate student and recent winner of the Margaret Skeel Graduate Scholarship Award. Marla gave an overview of the IBA program and Kelsey gave

a presentation on her research of Western Painted Turtles in Wascana Marsh. The evening concluded with details for Saturday's tours.

Members were split into groups and carpooled to tour sites — the Adair Creek reservoir and surrounding pasture south of town and the Provincial Ecological Reserve and village of Ellisboro north of town. The groups were led by myself and Conservation Director Lorne Scott but were free to explore as they saw fit. Highlights from the south were sightings of a number of Red-sided Garter Snakes, nesting cormorants and a Great Blue Heron. A few Yellow Lady Slippers were still found in full bloom while most were beginning to dry and go to seed. Walking access into the Ecological Reserve was limited due to deadfall

and overgrown vegetation. An old bridge (circa 1931) across the Qu'Appelle River was home to over 500 Cliff Swallows that entertained with their aerial displays. The history of Ellisboro was revealed on plaques around buildings dating back to the late 19th century. Blooming Prickly Pear Cactus on the valley slopes was an exciting discovery.

Everyone met back at the lake in Wolseley for a wiener roast lunch hosted by the local Nature Society. The groups switched tours for the afternoon. The social hour and banquet were again hosted at the Town Hall. The after-banquet speakers were Ruth Kost and Tom Perry, graduate students from the University of Saskatchewan. Ruth presented her research on the distribution of feral boar in the prairie-provinces and Tom presented on the ecology of wolves in the boreal forest of Saskatchewan.

Prior to the Annual General Meeting, an early morning tour of the historic buildings in town was provided by Stephen Scivor from the local society to those interested. The AGM was again held in the Town Hall and led by incoming President of the Board, Branimir Gjetvaj. Members were presented highlights from the annual report, asked to ratify the new membership fee structure and elect a new slate of directors for the Nature Saskatchewan board. A thank you to board members stepping down — Joan Feather, Tara Sample (Past President) and Dean Cattell — was presented. Joining the Board as Directors at large are Martin Boucher, Ken Ludwig and Amy Wheeler. The Meet was a success with many compliments to the local society for sharing their beautiful town and surrounding area. 🐦



Trailhead sign provided by Wolseley Elementary students. Interpretive signs along the trails also display the artwork of students.

A NEW ANNOTATED LIST OF MANITOBA FERNS (SPRING, 2016)

Richard J. Staniforth

336 Glenwood Crescent

Winnipeg, MB R2L 1J9

richard_staniforth@yahoo.ca

Most people who have interests in nature have enjoyed the pleasure of seeing ferns in their natural habitats; whether they have been large graceful stands of Ostrich ferns growing in spring-flooded, riverine forests; stately patches of bracken in among fragrant pines; or even the various kinds of rock ferns thriving in the smallest of crevices in granite or limestone outcroppings. Ferns bring a tranquil pleasure to their spectators, which is different to that provided by the bright colours that attract us to many flowering plants. In this article, I hope to update our understanding of ferns in Manitoba with the use of the reliable evidence that herbarium specimens can provide. During the early months of 2016, I examined the fern collections of herbaria at University of Winnipeg (UWPG), University of Manitoba (WIN), The Manitoba Museum (MMMN) and my own temporary collection (RS) but occasionally the research led to herbaria and information sources from elsewhere.

Hopefully, the resulting annotated checklist will be a baseline datum for future studies and will also update the most recent list of Manitoba's plant biota.¹ Horsetails and moonworts are also ferns in the truest meaning of the term, but these have not been included here because they have already been fully reported in previous articles in the *Blue Jay*.^{2,3} This article is restricted to the "true" or leptosporangiate ferns. Altogether 1,421 specimens of ferns were examined, their identifications were verified and notes taken regarding their ranges and habitats. There are several common names for most kinds

of ferns, even within the same region. The ones chosen for the checklist are those that are most commonly used, or seem to be the most logical names for those species. Alternative names that have occasionally been selected in important publications involving ferns are given below for clarification.^{4,5}

1. Eastern Lady-fern

Ladyfern⁴ (Fig. 1)

Athyrium filix-femina (Linnaeus) Roth
ex Mertens var. *angustum* (Willdenow)
G. Lawson

Very common. HABITAT: Wet organic soils in deciduous and mixed woodlands, bogs, fens, stream banks and roadside ditches.

RANGE: Southern half of Manitoba, but less commonly west of Red River. A few northern specimens show a minority of characteristics of the Northern Lady-fern, *A. filix-femina* var. *cyclosorum* Ruprecht.

2. American Parsley-fern

American Rockbrake⁴,

American Rock-fern⁵

Cryptogramma acrostichoides R. Brown

Uncommon. HABITAT: Depressions and crevices on granite outcrops. RANGE: From SE to mid-western Manitoba.



3. Bulblet Bladder-fern

Bulblet Fern⁴ (Fig. 2)

Cystopteris bulbifera (Linnaeus)
Bernhardi

Very rare. A single specimen (MMMN 39) was collected from "Eastern Manitoba" by M.W. Hutchison in 1944. No additional information is given on the herbarium label.

4. Brittle Bladder-fern

Fragile Fern⁴, Fragile Bladder-fern⁵

Cystopteris fragilis (Linnaeus)
Bernhardi

Common. HABITAT: Moist organic substrates in shaded crevices and mossy ledges on calcareous cliffs in mixed or coniferous forests.

Occasionally found on granite and other rock types, rarely on rotten logs within forests. RANGE: It is found from SE and across the southern half of the province north to Lynn Lake, but also at Churchill where it appears to be disjunct.



FIGURE 1. Manitoba's commonest ferns; Eastern Lady-fern (left), Spinulose Wood-fern (right);

5. Mackay's Bladder-fern

Upland Brittlefern⁴ (Fig. 2)
Cystopteris tenuis (Michaux) Desvaux
Rare. HABITAT: Shady calcareous and granite cliffs in the boreal forest.
RANGE: Similar to the Fragile Bladder-fern but scarcer and more southern and eastern. Formerly known as *C. fragilis* var. *mackayi* Lawson but was elevated to species status in 1983.⁶ This is the first report of this taxon from Manitoba; however, specimens at the Manitoba Museum had been casually annotated as "var. *tenuis*" by D. Brunton in 1986.

6. Spinulose Wood-fern

Spinulose Shield-fern^{4,5} (Fig. 1)
Dryopteris carthusiana (Villars) H.P. Fuchs
Very common. HABITAT: Moist organic soil, and occasionally on rocks, in deciduous, mixed and coniferous forests. RANGE: Throughout the southern half of Manitoba.

7. Crested Wood-fern

Crested Shield-fern^{4,5}
Dryopteris cristata (Linnaeus) A. Gray
Common. HABITAT: Wet organic substrates in bogs, fens and wet scrub and woodlands. RANGE: Southern one-third of Manitoba.



7a. Braun's Hybrid Wood-fern

Dryopteris x uliginosa (A. Braun ex Döll) Kuntze ex Druce = *Dryopteris carthusiana* x *D. cristata*
Very rare. HABITAT: Mixed and coniferous forests in the vicinity of both parent species; specimens are sterile and show characteristics of each. This is the first report of this hybrid for Manitoba.

8. Northern Wood-fern

Spreading Woodfern⁴ (Fig. 2)
Dryopteris expansa (C. Presl) Fraser-Jenkins & Jermy
Very rare. A single specimen was collected from a streamside granite outcrop in the Gunisao Lake area (53° 29'N; 96° 18'W) of mid-eastern Manitoba. This is the first report of this taxon from Manitoba. Although this specimen has all of the characteristic features of the Northern Wood-fern, it has been pointed out that its petiolar bracts do not exhibit the strongly marked central midrib usually found in this species (D. Brunton, pers. comm.).



9. Fragrant Wood-fern

Fragrant fern⁴, Fragrant Shield-fern⁵
Dryopteris fragrans (Linnaeus) Schott
Uncommon. HABITAT: Shady, non-calcareous cliffs on outcrops in the south but on exposed rock ridges northwards. RANGE: SE Manitoba and northwards to the Nunavut border.

10. Common Oak-fern

Northern Oak Fern⁴ (Fig. 1)
Gymnocarpium dryopteris (Linnaeus) Newman
Very common. HABITAT: On moist, organic soils in mixed and coniferous woodlands or amongst rocks. RANGE: From the Whiteshell Provincial Park in SE MB across Manitoba to Riding Mountain National Park and northwards to the Nunavut border.

11. Nahanni Oak-fern

Gymnocarpium jessoense (Koidzumi) Koidzumi subsp. *parvulum* Sarvela
Rare. HABITAT: Usually on ledges on limestone or granite outcrops in mixed or coniferous forests. RANGE: Similar to that of Common Oak-fern but much scarcer.

11a. Intermediate Oak-fern

Gymnocarpium x intermedium Sarvela = *Gymnocarpium jessoense* x *G. dryopteris*
Very rare, but likely commoner than records indicated. Found in proximity to parent species, i.e. rocky boreal woodlands.

12. Limestone Oak-fern

Gymnocarpium robertianum (Hoffmann) Newman
Very rare. HABITAT: Shady limestone cliffs and rocks, also cedar swamps. RANGE: Collected from four locations in Manitoba: north of Cranberry, 37 km and 50 km N of Grand Rapids and near the North Star Trail, E of Grand Beach Provincial Park. K. Pryer has thoroughly reviewed the occurrence of oak-ferns in Manitoba.⁷

FIGURE 1. Common Oak-fern (left); Ostrich fern (right).

13. Hairy Water Clover

Hairy Water Fern⁴, Hairy Pepperwort⁵, Water Shamrock (Fig. 2)

Marsilea vestita Hooker & Greville

Very rare. A single specimen (WIN 6250) is the only evidence of its occurrence in Manitoba. It may be more frequent but overlooked because it is inconspicuous. It occurs in adjacent parts of Saskatchewan, although not commonly⁵. The herbarium label on the Manitoba specimen indicated that it was collected from "Western Manitoba", but gives no additional information.

14. Ostrich Fern (Fig.1)

Matteuccia struthiopteris (Linnaeus) Todaro var. *pennsylvanica* (Willdenow) C.V. Morton

Very common. HABITAT: Wet or seasonally flooded deciduous or mixed woodlands, frequent in river bottomland forests. RANGE: The southern half of Manitoba. A popular garden plant with edible fiddleheads.⁸

15. Sensitive Fern

Onoclea sensibilis Linnaeus

Common. HABITAT: Wet, shrubby, mixed or deciduous forests, swamps and roadside ditches.

RANGE: SE Manitoba. Beaver Creek Provincial Park (51° 22'N; 96° 55'W) is the most northerly and westerly outpost for the entire range of this primarily eastern species.

16. Interrupted Fern

Osmunda claytoniana Linnaeus

Uncommon. HABITAT: Damp locations in deciduous, mixed or coniferous forests. RANGE: SE Manitoba. A specimen collected from near Hamar's Lake within Hecla Provincial Park (51° 11'N; 96° 55'W) is the most western location for this primarily eastern species.

17. Gastony's Cliff-brake

Pellaea gastonyi Windham

Very rare. HABITAT: Dolomite and limestone outcrops and boulders.

RANGE: A few colonies are known from the central and northern Interlake region of Manitoba. These were thoroughly documented by C. Friesen and C. Murray in 2015.⁹

18. Smooth Cliff-brake

Pellaea glabella Mettenius ex Kuhn ssp. *glabella*

Very rare. Known from only one location in Manitoba (49° 44'N; 95° 10'W); on the Hunt Lake Hiking Trail in Whiteshell Provincial Park where it has been found growing in moist crevices on a single, shaded, vertical, north-facing cliff of metamorphic rock within the boreal mixed forest.

18a. Western Smooth Cliff-brake

Western Dwarf Cliffbrake⁴

Pellaea glabella Mettenius ex Kuhn ssp. *occidentalis* (E. Nelson) Windham

Rare. HABITAT: Exposed and partially shaded sites on limestone and dolomite cliffs within the southern edge of the boreal forest.

RANGE: Mid-western Manitoba.

19. Northern Beech-fern

Phegopteris connectilis (Michaux) Wai

Very rare. This species has only been collected twice in Manitoba: Kasmere Lake, NW Manitoba (approx. 59° 35'N; 101°10'W) and, secondly, Tod Lake, W-central Manitoba (approx. 56° 34'N; 101° 46'W).

20. Siberian Polypody

Polypodium sibiricum Siplivinsky

Uncommon. HABITAT: Crevices and depressions on moist, moss-covered, shaded granite (occasionally calcareous) outcroppings.

RANGE: SE to NW Manitoba.

21. Common Rock Polypody

Rock Polypody⁴

Polypodium virginianum Linnaeus

Common. HABITAT: Crevices and depressions on moist, moss-covered, shaded granite (occasionally calcareous) outcroppings.

RANGE: SE to NW Manitoba. The Common Rock Polypody is the commoner of the two Polypody species in the southeast the province; however the Manitoba ranges of the two species overlap.



FIGURE 2. From left to right: Two new ferns for Manitoba; Mackay's Bladder-fern; Northern Wood-fern

22. Eastern Bracken

Bracken Fern⁴
Pteridium aquilinum (Linnaeus) Kuhn
var. *latiusculum* (Desvaux) Underwood
ex A. Heller

Common. HABITAT: Well-drained
and dry soils in mixed and coniferous
forests, or adjacent roadsides.
RANGE: SE Manitoba with disjunct
colonies in Riding Mountain National
Park¹⁰ and Kettle Hills.

23. Marsh Fern

Eastern Marsh Fern⁴
Thelypteris palustris Schott var.
pubescens (Lawson) Fernald

Uncommon. HABITAT: Fens, bogs,
roadside ditches and open, wet, grassy
areas in boreal woodlands. RANGE: SE
Manitoba with a disjunct population
near Grand Rapids (53° 20'N; 98° 20'
W).

24. Alpine Woodsia

Northern Woodsia⁴
Woodsia alpina (Bolton) S.F.Gray
Very rare. HABITAT: moist, shaded,
granite or metamorphic outcroppings
within the boreal forest^{11,12}.
RANGE: Collected from four sites in
Manitoba: Tod Lake, Snow Lake, Lake
Waskaiowaka and Hunt Lake in the
Whiteshell Provincial Park. W. Cody
and D. Britton have reviewed the
status of Woodsia in Manitoba.^{11,12}



FIGURE 2. Two old, unique and mysterious Manitoba fern specimens; Bulblet Bladder-fern, Hairy water-clover.

25. Smooth Woodsia

Woodsia glabella R. Brown ex
Richardson
Rare. HABITAT: Shaded crevices in
limestone and dolomite cliffs.
RANGE: Northern Interlake region,
westward to the Saskatchewan border.

26. Rusty Woodsia

Woodsia ilvensis (Linnaeus) R. Brown
Very common. HABITAT: Exposed
crevices and depressions on Pre-
Cambrian granite outcroppings in
the boreal forests. RANGE: From
Whiteshell Prov. Park in SE Manitoba
to the Nunavut border.¹²

27. Oregon Woodsia

Woodsia oregana D.C. Eaton ssp.
oregana
Very rare. Collected from two locations
in Manitoba; on a schist rock outcrop
in Baker's Narrows Provincial Park
(54° 40'N; 101° 39'W), and secondly
just a few kilometres closer to Flin
Flon. Manitoba specimens had been
previously mistakenly identified as the
pubescent subspecies *cathcartiana*
(B.L. Robinson) Windham.



27a. Hybrid Woodsia

Woodsia x abbeae Butters = *W.*
oregana x *W. ilvensis*
Specimens have been collected from
among a colony of Oregon Woodsia
near Baker's Narrows Provincial Park
and are the mistaken basis of a record
of *W. scopulina* for Manitoba. This
is the first report of this taxon for
Manitoba.

Synopsis of fern taxa in
Manitoba

In Manitoba, there are 27 species,
one additional subspecies and three
hybrids. Perhaps not surprisingly,
the diversity of ferns that occur in
Manitoba is not very different to
that of Saskatchewan⁵. However, the
fern flora of Saskatchewan includes
several species that have ranges that
do not extend eastwards as far as
Manitoba: Rocky Mountain Woodsia,
Sitka Lady-fern, Mountain Bladder-
fern and the Male Fern. Similarly,
Manitoba has several species that are
primarily eastern and do not reach as
far west as Saskatchewan: Interrupted
Fern, Sensitive Fern, Northern Wood-
fern, Mackay's Bladder-fern, Bulblet
Bladder-fern, Eastern Bracken,
Limestone Oak-fern and Smooth Cliff-
brake. Needless to say, both provinces
harbour species of ferns that reach
their north-eastern or north-western
North American range limits.

The commonest of Manitoba
Ferns (Fig. 1)

The sequence of species for
which the most specimens had been
collected was: Spinulose Wood-fern,
Eastern Lady-fern, Common Oak-fern,
Ostrich Fern and Rusty Woodsia. These
are all common species; however, it
must be borne in mind that collection
biases may enter this and into the next
calculation.

The rarest of Manitoba Ferns

Eight Manitoba species of ferns were particularly noteworthy for their scarcity in herbarium collections. Hairy Water-clover, Northern Wood-fern and Bulblet Bladder-fern were represented by single specimens. Other rare ferns are Oregon Woodsia and Smooth Cliff-brake each of which had been found from single locations; Baker's Narrows Provincial Park and on the Hunt Lake Trail, Whiteshell Provincial Park, respectively. Other very rare or much localised fern species are Northern Beech-fern, Gastony's Cliff-brake, Limestone Oak-fern and Alpine Woodsia. The last species was found close to the site which bears the single small colony of Smooth Cliff-brake and probably should receive protection.

Two intriguing fern mysteries (Fig. 2)

Bulblet Bladder-fern and the Hairy Water-clover are each represented in Manitoba's flora by single specimens that were collected a long time ago and have not been seen in the province since. Incomplete information on the herbarium labels has added to their mystery and intrigue.

The Bulblet Bladder-fern is a species of the eastern United States as far north and west as Minnesota and northern Ontario. A specimen was collected by M.W. Hutchison on July 22, 1944 from "Eastern Manitoba" and is now in the Herbarium of the Manitoba Museum (MMMN 39). Its identification has been verified by Scoggan (1950), Boivin (1964) and Cody (1984). Whereas, there has been no doubt about its identification, its

origin has remained a mystery. Boivin has speculated that this specimen had been collected from elsewhere in its range with the purpose of a providing a sample to represent a species whose distribution was once mistakenly considered to include "Eastern Manitoba." On the other hand, a recent publication of ferns by Chadde does indicate that the species is widespread in northern Minnesota including Roseau County which is adjacent to the Manitoba border.¹³ Scoggan has succinctly summarised the present status of Bulblet Bladder-fern in Manitoba with his statement: "Further collections of this species are desirable to remove all doubt as to its occurrence in the province."¹⁴

The Hairy Water-clover is a strange fern that inhabits shallow water or water-edge muck. Its two kinds of leaves are "un-fernlike" in shape. The aerial or floating ones resemble the leaves of a four-leaved clover and the submerged leaves are fertile and resemble small nutlets. This strange fern is an uncommon species in the American Midwest and the three western Canadian provinces. In Saskatchewan, it is widely but uncommonly distributed across the southern part of the province⁵. There is a specimen in the herbarium of the University of Manitoba that is labelled "Western Manitoba" (WIN 6250) but the exact location and date of collection, and the collector's name are not provided on the herbarium label. With reference to the occurrence of Hairy water-clover in Manitoba, Cody has made the statement: "The species should be searched for in Western Manitoba".¹²

Special fern places

Manitoba fern specimens had been collected from a variety of ecosystem moist woodlands, marshes, roadsides limestone escarpments and granite outcroppings. There were more species in the southeast quadrant of the province and the least numbers

ARGENTINA WILDLIFE FROM PATAGONIA TO MARSHES

November 9 – 22, 2016

Worldwide Ecotours Worldwide Ecotours is offering an exciting up-close encounter with the wildlife of Patagonia and Ibera Marshes. Tango with penguins, Capybara, Rhea, and other South American wildlife. Your tour host, Leslie Tuchek, is an ecological educator who has guided tours for the University of Saskatchewan Distance Education for eight years. Leslie is an avid birder, nature lover and wildlife photographer.



For more information & detailed itinerary contact:

Leslie Tuchek

leslie.tuchek@usask.ca

Tel: 306.230.0941


Ruth MacRae

ruth@worldwideecotours.com

Tel: 1-888-778-2378

in the northwest quadrant. This is unlikely to be a phenomenon that is entirely related to collection bias because those ecosystems with few species outside of the southeast corner were those which were prone to forest fires, dry sandy substrates in pine forests or in areas of intense agriculture. Limestone escarpments harbour interesting fern species such as the Smooth and Gastony's Cliff-brakes, Smooth Woodsia and the Limestone Oak-fern, and yet these habitats are vulnerable to quarrying which may put their inhabitants at risk. Two specific non-limestone sites are also particularly noteworthy, firstly Baker's Lake Provincial Park in which Manitoba's only colony of Oregon Woodsia is to be found, and secondly the Hunt Lake Trail in the Whiteshell Provincial Park where cliffs support the only Manitoba colony of the Smooth Cliff-brake (*Pellaea glabella glabella*), as well as a few plants of the rare Alpine Woodsia.

I am very grateful to Diana Bizecki Robson and Janis Klapcecki at the Manitoba Museum, to German Avila-Sakar at the University of Winnipeg and to Bruce Ford at the University of Manitoba for allowing me to study their Manitoba fern collections. Also, Jessica Elliott and Jason Kelly of Parks Branch, Manitoba Conservation who facilitated collection permits for provincial parks. Thanks go to Chris Friesen and staff at the Manitoba Conservation Data Centre for information on rare fern sites and to Dan Brunton for stimulating and interesting discussions about many issues concerning ferns. I am most grateful to both the anonymous reviewer and to editor Annie McLeod for their encouragement and excellent advice.

1. Punter, E. (1995) Manitoba's Vascular Plants. Manitoba Conservation Data Centre, Winnipeg, MB.
2. Staniforth, R.J. (2013). Horsetails and scouring-rushes (*Equisetum* spp.) in Manitoba. *Blue Jay* 71(1) 48-67.
3. Staniforth, R.J. (2011) Ophioglossid ferns in Manitoba: moonworts, grapeferns and northern adder's-tongue. *Blue Jay* 69(2) 75-87.
4. The Flora of North America Association (1993) Flora of North America. Vol 2: Pteridophytes and Gymnosperms. Oxford University Press, Inc. New York, NY.
5. Harms, V.L. and Leighton, A.L. (2011). Ferns and fern allies of Saskatchewan. Flora of Saskatchewan Fascicle 1. Nature Saskatchewan Special Publication #30. Publ. by Flora of Saskatchewan Association and Nature Saskatchewan, Regina, SK.
6. Moran, R.C. (1983) *Cystopteris tenuis* (Michx.) Desv.: A poorly understood species. *Castanea* 48: 218-223.
7. Pryer, K. M. (1990) The limestone oak fern: New to Manitoba. *Blue Jay* 48(4): 192-195.
8. Greenwood, D. R. (2015) Ferns for Canadian gardens, with fronds like these who needs anemones? *The Gardener* 21(3) 20-26.
9. Friesen, C. and Murray, C. (2015). Gastony's Cliffbrake (*Pellaea gastonyi*) in Manitoba: new records and assessment of conservation status. *Canadian Field-Naturalist* 129(1): 45-52.
10. Cody, W.J. (1988) Plants of Riding Mountain National Park. Publication 1818/E, Research Branch, Agriculture Canada, Ottawa, ON.
11. Cody, W.J. and Lafontaine, J.D. (1975) The fern genus *Woodsia* in Manitoba. *The Canadian Field-Naturalist* 89: 66-69.
12. Cody, W.J. and Britton, D.M. (1989) The ferns and fern allies of Canada. Ottawa, ON.
13. Chadde, S.W. (2013) Midwest Ferns. A field guide to the ferns and fern relatives of the north central United States. Self-published by S.W. Chadde. Printed by CreateSpace Independent Printing Platform. USA.
14. Scoggan, H.J. (1957) The flora of Manitoba. National Museum of Canada. Bulletin No. 140. Biological Sciences No. 47. Department of Northern Affairs and National Resources, Ottawa, ON. 

CALL FOR REGIONAL COORDINATORS SASKATCHEWAN BREEDING BIRD ATLAS

Bird Studies Canada is currently seeking volunteers to serve as Regional Coordinators (RCs) to help manage coverage of the Saskatchewan Breeding Bird Atlas. The Atlas is scheduled to run from 2017 to 2021 and aims to document the distribution and abundance of breeding birds across the province. Regional Coordinators play a vital role in the success of an Atlas: they act as the main contact and information source for participants within their region; and they work with Atlas staff to ensure that regional coverage targets and data quality standards are met. People interested in serving as RCs should have solid bird identification skills and knowledge of the breeding birds likely to be found in their region. Regions for the southern half of the province are currently based on birding districts; however, these will be modified based on the locations of our RCs and from input at our Fall 2016 Regional Coordinator meeting. We will be hosting the Regional Coordinator meeting at a scenic location over the weekend of October 29-30, 2016. It will be a great opportunity to learn more about the project, meet the Atlas staff and your fellow RCs, and to enjoy some fall birdwatching. If you are interested in making this significant contribution to the Saskatchewan Breeding Bird Atlas by serving as a Regional Coordinator and would like more information, please contact Bird Studies Canada at skatlas@birdscanada.org or call us at 306-249-2894.

SHOREBIRDS ECOLOGY AND CONSERVATION WORKSHOP CONVENES AT CHAPLIN LAKE

**Monica Iglecia, Brad Winn
and Brian Harrington**
Manomet. P.O. Box 1770
Manomet, MA 02345, USA

Jordan Ignatiuk
Nature Saskatchewan
1860 Lorne St.
Regina, SK S4P 2L7

Christy Morrissey
University of Saskatchewan
112 Science Place
Saskatoon, SK S7N 5E2

Lori Wilson
Chaplin Nature Centre
Box 57, Chaplin, SK S0H 0V0

Corresponding address:
Manomet Box 1770
Manomet, MA 02345
miglecia@manomet.org

Shorebirds are a widely diverse group of birds in the order Charadriiformes represented in North America by four families: Charadriidae (plovers), Haematopodidae (oystercatchers), Recurvirostridae (stilts and avocets), and the largest family, Scolopacidae (sandpipers, snipes, and phalaropes). Characterized for their strong affinity to shallow water habitat and open areas, shorebirds rely on a variety of locations throughout the year along their migratory routes, including coastlines, wetlands, and saline lakes.

Migratory shorebird populations have declined 70 per cent in the last four decades.¹ Some of the major threats to shorebirds include habitat loss and degradation, disturbance by humans during breeding and migration, and a series of complicating factors due to a changing climate.^{2,3} In Saskatchewan, nearly 40 per cent of wetlands have been lost to drainage and degradation and

nearly 10,000 acres of wetlands are drained each year.^{4,5} Appropriate land management has the potential to alleviate some of the threats to shorebird populations. Through regional shorebird conservation workshops, we can engage and educate land managers, land owners, and biologists and provide advisement of land management strategies that can improve habitats for shorebirds.

In late May 2016, Manomet's Shorebird Recovery Program's Habitat Management Team co-hosted a "Shorebird Ecology, Conservation, and Habitat Management workshop" in Chaplin, Saskatchewan, in collaboration with Nature Saskatchewan, the Chaplin Nature Centre and the University of Saskatchewan. The goals of the workshop were to bring together and train land managers, biologists, and other conservation professionals in the topics of shorebird ecology and habitat needs and to discuss threats to shorebird populations and opportunities for conservation efforts.

Prairie Canada, rich with wetlands, spans three provinces (Alberta, Manitoba, and Saskatchewan) and is part of the great Central Flyway, a migratory bird superhighway that links breeding grounds in the Arctic with wintering grounds in the southern United States and Central and South America. Canadian prairie habitats and associated wetlands support 25 breeding shorebird species and provide fall and spring migration habitat for 31 species (Fig. 1).⁶ For some shorebird species, the prairies provide the only breeding habitat in Canada. Some of these prairie-breeding shorebirds include

Willet (*Tringa semipalmata*), Upland Sandpiper (*Bartramia longicauda*, Fig. 2), American Avocet (*Recurvirostra americana*), Piping Plover (*Charadrius melodus*, listed under Species at Risk Act), and Marbled Godwit (*Limosa fedoa*).

During our workshop, field excursions focused on the Chaplin Old Wives, and Reed lakes, a Western Hemisphere Shorebird Reserve Network (WHSRN) Site of Hemispheric Importance (<http://www.whsrn.org/site-profile/chaplin-old-wives-reed-lakes>) used by 30 shorebird species and up to 30 per cent of the global population of Sanderling (*Calidris alba*). In late May, the arctic-nesting Red Knots (*Calidris canutus*) and Black-bellied Plovers (*Pluvialis squatarola*) using Chaplin Old Wives and Reed Lakes are preparing to move further north to the breeding areas (Fig. 3). We encountered at least 450 Red Knots as they roosted on the abandoned road on Reed Lake and foraged along the lake edge and in nearby agricultural fields. We sighted two knots with colored flags on their upper legs. Both birds had been flagged by David Newstead of the Coastal Bays and Estuaries Program in coastal Texas, highlighting the connectivity between the central coast of the United States and inland lakes and wetlands in the prairie pothole region of the northern United States and Canada.

Workshop discussions included shorebird ecology at a hemispheric scale, as well as local topics and overarching conservation efforts across the Canadian prairies. Presentations were given by Manomet staff and a variety of regional professionals and scientists.

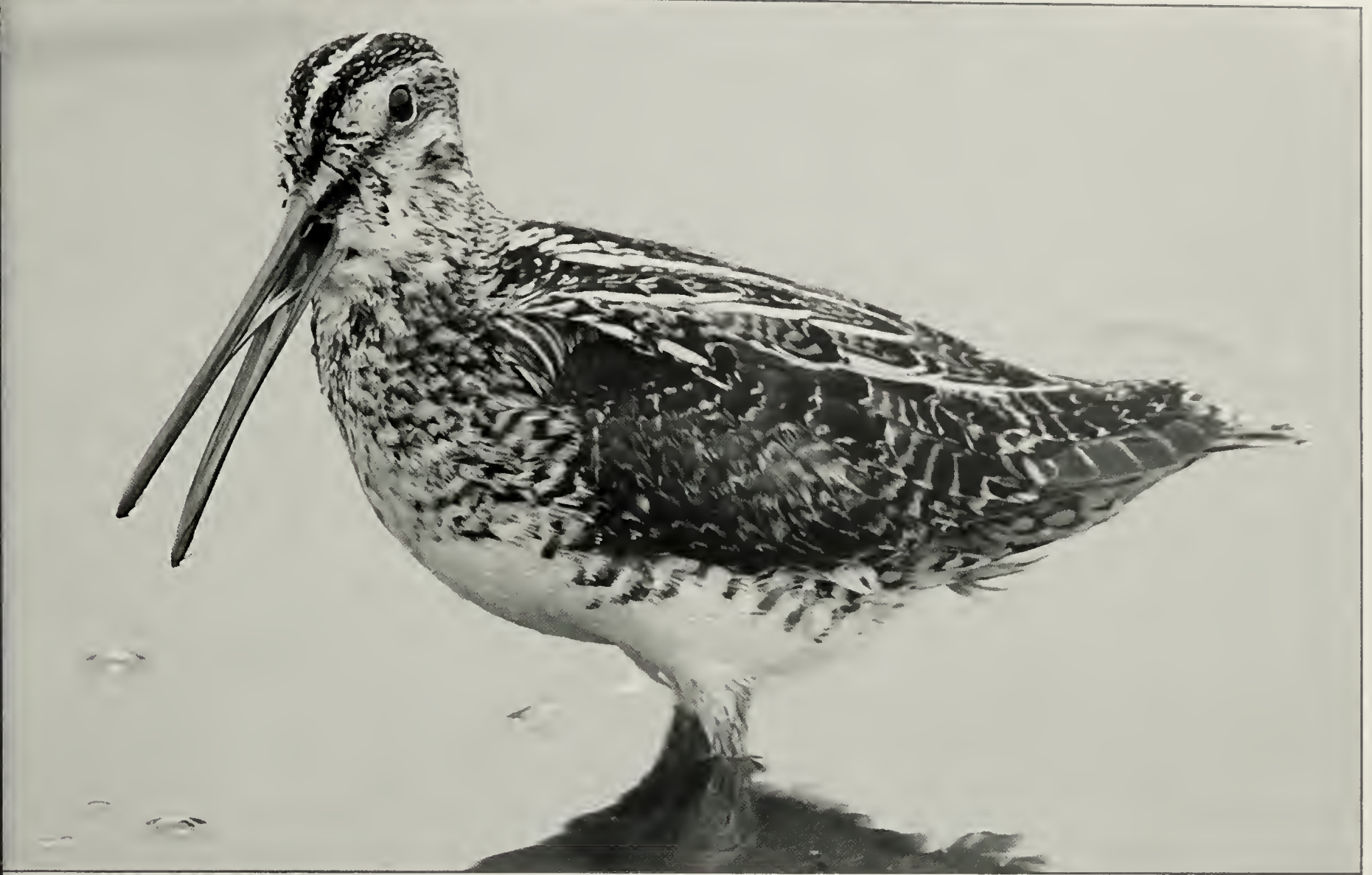


Figure 1. A Wilson's Snipe calls to its mate. Photo credit: Brad Winn

ale Hjertaas with the Saskatchewan Water Security Agency provided the local geologic and landscape context for the importance of the region for shorebirds. Dr. Christy Morrissey with the University of Saskatchewan presented her lab's research on the impacts of wind farms and pollution threats to shorebirds in the Central Valley. Dr. Morrissey and her graduate students also provided a tour of the Motus tracking system they are using to understand underling and Red Knot movements in the region. Lori Wilson of the Chaplin Nature Centre discussed the Linking Communities program (<http://utahlinking.org/>), a tri-national partnership between three sites in the Western Hemisphere Shorebird Reserve Network that share the same shorebirds and have developed a joint program of wetland bird conservation, environmental education and ecotourism:

Chaplin and associated lakes in Saskatchewan, Canada; Great Salt Lake in Utah, United States of America; and Marismas Nacionales in Nayarit, Mexico. Alan Smith of Nature Saskatchewan described the past and current status of the long-term International Piping Plover Breeding Census in the ephemeral prairie habitats in Saskatchewan. Rebecca Magnus of Nature

Saskatchewan shared the Stewards of Saskatchewan program, which includes local habitat management efforts and collaboration with private landowners to further Piping Plover conservation in the region. Dr. Ann McKellar from Environment and Climate Change Canada presented results of shorebird monitoring and conservation efforts in the Prairie Provinces.



Figure 2. A pair of Upland Sandpipers forage along the edges of Chaplin Lake, Saskatchewan. Photo credit: Brad Winn



Figure 3. Red Knots and Black-bellied Plovers roost at Reed Lake, Saskatchewan. Photo credit: Monica Igleci.

The 35 workshop participants in attendance came from all three Prairie Provinces and included university professors and students as well as biologists and land managers from non-profits, provincial and federal agencies, and environmental consultants (Fig. 4). Among the workshop participants were seven individuals that had also attended the first-of-its-kind shorebird workshop in the Canadian prairies in May of 1999 at the recently designated Western Hemisphere Shorebird Reserve Network Site of Chaplin, Old Wives, and Reed lakes (Fig. 5). Brian Harrington of Manomet had collaborated with the Saskatchewan Wetland Conservation Corporation and Ducks Unlimited Canada to hold the event. Today, each of the returning workshop participants plays a significant role in bird conservation

and we had the opportunity to learn more about a couple of the returning participants.

Michael Barr attended the 1999 shorebird workshop as an avid bird enthusiast and Ducks Unlimited Canada biologist. His interest in shorebirds was ignited just prior to the workshop, after collaborating with Environment Canada in nominating Beaverhill Lake as a WHSRN site, the first and only in Alberta. In his current capacity as the North American Waterfowl Management Plan Coordinator in Alberta, Michael says he is in a position to help raise the profile and enable shorebird conservation action in Alberta and across Prairie Canada through the Prairie Habitat Joint Venture. Michael stated that the workshop had re-inspired his interest in shorebirds and that "Manomet's workshops bring

much needed attention, knowledge, and enthusiasm to resource managers and biologists to act on the needs of shorebirds."

Barbara Hanbidge attended the workshop in 1999 and said that the workshop gave her the skills to identify shorebirds and their habitats. Since then, Barbara has influenced wetland management in ways that benefit shorebirds and other waterbirds in Saskatchewan throughout her career with Ducks Unlimited Canada. Barbara says she returned for the second workshop in 2016 to learn more and to stay connected with the latest in shorebird conservation efforts. Today, Barbara is a Provincial Policy Specialist in Saskatchewan and a longtime resident near Chaplin Lake.

Both the 1999 and the 2016 shorebird workshops benefitted from



Figure 4. The 2016 workshop participants visit Reed Lake, Saskatchewan. Photo credit: Brad Winn



Figure 5. From left to right: Brian Harrington and returning workshop participants Michael Barr, Barbara Hanbidge, Jordan Ignatiuk, Clem Millar, Lori Wilson, Alan Smith, and Andrew Hak. Photo credit: Brad Winn

the enthusiasm and expertise of the Chaplin Lake Nature Centre's staff (chaplintourism.com). The Centre embodies the spirit of the Western Hemisphere Shorebird Reserve Network (www.whsrn.org), which relies on local support and expertise for the management and protection of strategic shorebird migration stopover sites. The Nature Centre and its allies have done an impressive job engaging the public and providing site stewardship.

The workshop participants this spring in Chaplin included conservation professionals of a variety of ages and stages in their careers. It was a pleasure to meet them all, from the students to the seasoned professionals. We all have much to learn from each other as we work to conserve our shared shorebirds across international boundaries. It was quite

the experience to reconnect with the individuals that have committed themselves to the conservation of the critical habitats in the Canadian prairies and to meet some of the next generation eager to make a difference.

1. North American Bird Conservation Initiative (2016) The State of North America's Birds 2016. Environment and Climate Change Canada: Ottawa, Ontario. 8 pages. www.stateofthebirds.org
2. Canadian Wildlife Service (2000) Canadian Shorebird Conservation Plan. Unpublished report prepared by the Canadian Wildlife Service. Donaldson GM, Hyslop C, Morrison RIG, Dickson HL, Davidson I (eds) Environment Canada, Ottawa, Ontario K1A 0H3
3. Van Gils JA, Lisovski S, Lok T, Meissner W, Ozarowska A, de Fouw J, Rakhimberdiev E, Soloviev MY, Piersma T, Klaassen M (2016) Body shrinkage due to Arctic Warming Reduces Red Knot Fitness in Tropical Wintering Range. *Science* 6287: 819-821.
4. Huel D (2000) Managing Saskatchewan Wetlands A Landowners Guide. Saskatchewan Wetland Conservation Corporation. Regina, Saskatchewan. Accessed June 24, 2016. www.southsaskriverstewards.ca/ckfinder/userfiles/files/ManagingSaskatchewanWetlands.pdf?PHPSID=hr0j0knlod1uqiveg37873n1u0
5. Ducks Unlimited Canada (2015) Ducks Unlimited Canada: Campaign for a Better Future. Accessed June 24, 2016. <http://www.marketwired.com/press-release/ducks-unlimited-canada-campaign-for-a-better-future-2060308.htm>
6. Prairie Habitat Joint Venture (2000) Prairie Canada Shorebird Conservation Plan. Unpublished Report prepared by the PHJV Prairies Canada Shorebird Conservation Plan Drafting Committee. Edmonton, Alberta. Accessed June 24, 2016. www.phjv.ca/pdf/Prairie%20Canada%20Shorebird%20Conservation%20Plan.pdf

TWO OF SASKATCHEWAN'S OLDEST AND MOST-STUDIED RAPTORS



Osprey with 1K blue band on left leg. Photo credit: Julio Blas

C. Stuart Houston

863 University Drive

Saskatoon SK S7N 0J8

stuart.houston@usask.ca

I report two new Saskatchewan raptor longevity records received in 2013, my 71st year of banding birds.

Great Horned Owl (*Bubo virginianus*), 608-89289. 25 years, 9 months.

This owl was killed on Highway 20, 12 km south of Nokomis, near the junction where Highway 15 heads east, on the evening of February 15, 2013, 180 km SSE of where it had been banded. It died instantly, doing about \$1,200 damage to the grill of Kevin King's van. This owl had been banded on May 24, 1987, and thereby became Saskatchewan's oldest Great Horned Owl at 25 years, nine-and-a-half months.

It had been one of two young in one of four nests lined up for me by Lorne Volk, then teaching science at Mayfair High School, but who formerly had nests for me to band when he taught earlier at Eyebrow. Landowner Phyllis Jackson was present at the banding with her granddaughters, Glennis in Grade 6 and Marilyn in Grade 10. Martin Gerard and Bob Green were my climbers that day; Bob climbed to the nest 8.9 m in an aspen. I take only minor credit for Lorne Volk's high reputation today as the Senior Biologist in the Louis Riel School Division in St. Boniface, one of the top high schools in Greater Winnipeg.

This owl recovery was one of 597 from the 7,771 Great Horned Owls (7.7 per cent) banded in

Saskatchewan under my master permit, 1946-2015. I had previously held the North American longevity record twice: 508-08090, banded at Bredenbury on May 17, 1959 and caught in a trap at Roblin, MB on Dec. 4, 1972 (Houston 1985) was 13 years, six months old, the North American record for four years. Next was 518-60626, banded 1.5 miles west of Elstow (wrongly cited as "Lanigan") on May 20, 1967, killed by a truck on Highway 5, 11 km south of Aberdeen on January 18, 1988, 20 years seven months old, and found by Hal Fleischhaker. It was in such good condition that he obtained permission from the conservation officer to have it mounted. This recovery held the record for the continent for two years (Klimkiewicz and Futch 1989; fig. 2 in Houston 1992). Finally, an injured owl 608-08052, was found and was euthanized at the Veterinary College at the University of Saskatchewan at 23 years, four months old; it was within 2 km of where it had been banded by Gerard Beyersbergen on June 1, 1977 (Beyersbergen 2006). The two current North American

longevity records are an owl banded by Jack Holt near Cincinnati, Ohio, which lived until it was seriously injured at 28 years, 0 months; that bird, after rehab, lived a few more years as a demonstration owl in an owl rehab facility, but those years do not count for survival in the wild. An even longer survival of 28 years, seven months is listed in the North American longevity records in second place in error at only 27 years, seven months, because the fact 568-17752 was an adult when banded (clearly stated in Nero 1992 and Sealy et al. 2003) did not reach the banding office, which still lists the record on July 7, 2016 as "age unknown."

**Osprey (*Pandion haliaetus*),
608-98795.
19 years 3 months.**

The various sightings of Saskatchewan's oldest Osprey are of particular interest. I applied two bands to this Osprey — the standard aluminum band on the right leg, and a blue band with a readily visible alphanumeric 1-K on the other leg, when it was a nestling on the



Stuart Houston holding a healthy Great Horned Owl.
Photo credit: Glen and Rebecca Grambo

platform at the north end of Loon Lake on July 16, 1994. The female parent carried a black band 1-8 on her right leg, placed when trapped on three eggs on June 4, 1989 by Bert Dalziel, and recaptured on three eggs on the same platform on June 4, 1990 by Marc Bechard.

Blue 1-K became our most frequently sighted osprey, with four encounters and one recovery. It was photographed twice by Dr. Julio Blas from Seville, Spain. It proved to be our only osprey to return to breed (surprise!) on the identical platform on which it had been raised, at nine years, July 19, 2003. When 12 years old, it moved to a platform 200 m distant where it was photographed by Blas on July 22, 2006 when 12 years old. Its final encounter, sighted by telescope at the original but restored platform, was by Marten Stoffel on May 23, 2008 when it was nearly 14 years old. M.T. Griffin reported its recovery, with both leg bands intact, on the air force base 1.5 km south of Bellevue, Nebraska on October 9, 2013, at 19 years three



Osprey banding crew in the mid-2000s. Top row: Julio Blas, Martin Gerard, Stuart Houston and Marten Stoffel. Middle: Mary Houston and Dan Zazelenchuk. Front: Silvia Gerard, Penny Davis and Frank Scott.
Photo credit: Julio Blas

months of age. Sightings of blue 1-K thus accounted for five of the 32 recoveries and encounters of Ospreys from 609 banded, 1965-2004.

1-K blue was raised on the second most successful platform we built in our study area, where 25 young were reared to fledging in 12 years of success and four years of failure. Our most successful platform was built on Tullibee Lake; it raised 26 young in 11 years. The third successful platform on a donated and transported windmill in the marsh south of the unbuilt railway line never completed into Loon Lake village, raised 21 young in nine years of success (Houston *et al.* 2010).

The winter recoveries of Saskatchewan-banded Ospreys have been mapped — one in Ecuador, two in Colombia, and one in Panama (Ewins and Houston 1992). An Osprey with a satellite transmitter wintered twice in Costa Rica (Houston, 2002, 2004). The North American Osprey longevity record is 25 years two months in Virginia (Longevity records of North American birds USGS).

The world famous bird bander, the first author of *The Golden Guide to Field Identification of Birds of North America*, and the one who conceived Breeding Bird Surveys, Chandler S. Robbins, began banding in Maryland. He banded birds for 75 years until he ceased at the end of 2013 at age 94. The Houston and Robbins families both lived in Jesus College, Oxford University, during the XIV International Ornithological Congress, July 24-30, 1966 and have been correspondents since. Chan's albatross currently holds the world record for the oldest bird banded — a Laysan Albatross banded on Midway Island in the Pacific Ocean in 1956, when it must have been at least five and perhaps eight years old. This albatross usually breeds

every second year and has done so for over 58 years. Chan himself recaptured it there in 2002, and has received reports of its breeding at age 63, the world's oldest banded bird of any species.

I thank Spencer G. Sealy for constructive criticism.

BEYERSBERGEN, G.W. 2006. Great Horned Owl: longevity record for Saskatchewan. *Blue Jay* 64(4):216.

EWINS, P.J. and C.S. HOUSTON. 1992. Recovery patterns of Ospreys, *Pandion haliaetus*, banded in Canada up to 1989. *Can. Field-Nat.* 106(3): 361-365.

HOUSTON, C.S. 1985. Longevity of Saskatchewan birds. *North American Bird Bander* 10(3):66-68.

HOUSTON, C.S. 1992. North America's oldest Great Horned Owl. *Blue Jay* 50(2):88-90.

HOUSTON, C.S., F. SCOTT and R.B. TETHER. 2010. Productivity of Ospreys, *Pandion haliaetus*, affected by water levels near Loon lake, Saskatchewan, 1975-2002.

HOUSTON, C.S. 2002. Speedy migration: Saskatchewan's first Osprey satellite transmitter. *Blue Jay* 60(2):74-79.


HOUSTON, C.S. 2004. Osprey's second trip to Costa Rica. *Blue Jay* 62:214-215.

KLIMKIEWICZ, M.K. and A.G. FUTCHER. 1989. Longevity records of North American birds, Supplement 1. *J. Field Ornithol.* 60(4): 469-494.

LONGEVITY RECORDS OF NORTH AMERICAN BIRDS. USGS.

https://pwrc.usgs.gov/bbl/longevity/longevity_main.cfm, accessed July 7, 2016.

NERO, R.W. 1992. New Great Horned Owl longevity record. *Blue Jay* 50(2):91-92.

SEALY, S.G., J.C. DUNCAN, and R.W. NERO. 2003. Additional notes on Manitoba's long-lived Great Horned Owl (band number 568-17752). *Blue Jay* 61(1): 27-30. 

Introducing Marla Anderson



Born and raised in Regina, Marla's love for nature started during the many cross country camping trips she took with her family and the summers spent at their cabin on Last Mountain Lake. After receiving a diploma in photography at SIAST, Marla travelled the world and made a home in a variety of places, including the UK, Palau, Botswana, and South Africa. She has seen some amazing places and some amazing wildlife, but it was while doing large predator research in South Africa that Marla decided nature conservation was what really inspired her.

Returning back to Canada, Marla completed a diploma in Wildlife and Fisheries Conservation from Lakeland College and continued her education at the University of Regina obtaining a degree in Environmental Biology. Marla began working for Nature Saskatchewan in 2014 as the Important Bird Areas summer assistant. She loved it so much she came back again in the summers of 2015 and 2016. Marla will be fulfilling the role of Conservation and Education Manager while Lacey Weekes is away on maternity leave.



Orin Balas visiting with Environment & Climate Change Canada staff. Photo credit: Kelly Williamson, SODCAP

FROM THE GROUND UP

PONTEIX RANCHER COMMITTED TO RAISING ENVIRONMENTAL AWARENESS

Tracy Harrison for the South of the Divide Conservation Action Program Inc.

While his cattle graze on a large tract of native grass on the Continental Divide, Orin Balas of Ponteix, Saskatchewan has been working to reduce the divide between the ranching community and those who are not familiar with the environmental benefits that he and his neighbors provide.

"As a group, ranchers usually are just more comfortable just being ignored — but that seems to have

stopped. And so by telling the positive story of what ranching can contribute to the ecosystem, that is a positive for me," said Balas.

As a voice for ranchers, Balas puts considerable time into sitting on various boards and committees, working with a variety of organizations in the interest of prairie conservation. His ranch has also been used a stop for educational tours.

"The reason I'm so involved is because for a lot of years, ranchers were maybe chastised and looked down upon, and yet they were

probably the only ones that managed large chunks of native range in a manner that provided habitat for a lot of various species," said Balas.

"I think that's something that the public has to be made aware of," he added, noting that historically, people living on the land were given incentives to plow the land and introduce new crops.

"It seems that now, the ranchers that resisted partaking in those programs are the ones that now have species at risk left on their land and a lot of other wildlife species

besides — like game species and others that the public wants to enjoy in one form or another. So I think the ranchers need to be given credit and recognition for their resilience to poorly designed programs and policies that came along in the past.”

Roots in Ranching

For Balas and other ranchers like him, land management decisions are deeply rooted in family tradition and values passed down through generations.

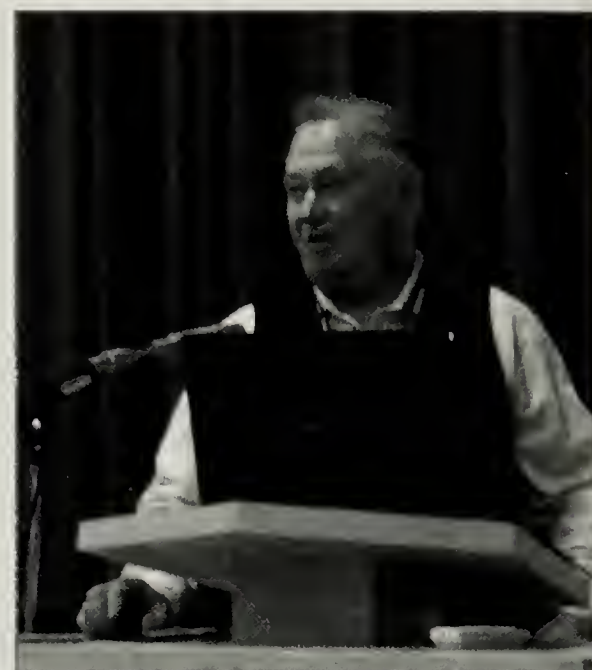
“I grew up on the ranch. I was born there and have been basically ranching all my life,” said Balas, who took over from his parents, raised his own family there and now shares his love of ranching with his young grandchildren.

The ranch is located midway between the towns of Val Marie, Mankota and Ponteix and is divided into two blocks: summer range and winter range.

“The summer range is all native grass and it’s right on the divide north of Val Marie, pretty well surrounded on all sides by other ranches that have all native grass — so that’s a huge block of native grass.”

The winter range is located about 10 miles northeast and includes farmland that was seeded back to grass.

“I run the ranch as a year-round grazing operation if I can get away with it and try to stockpile grass rather than bale it,” said Balas, adding that he has consulted with



Orin Balas presenting at the Milk River Watershed AGM earlier this year. Photo credit: Milk River Watershed Council

range specialists to help undertake numerous projects over the years.

To improve his management, he’s had to make decisions about herd movement, livestock watering development and fencing — all with consideration for the Sprague’s Pipit, a grassland songbird protected as a species at risk.

Commitment to the Industry

As a longtime member of the Saskatchewan Stockgrowers Association, Balas held various positions on its executive and served as the land-use chair for a number of years. Through the organization, he was also appointed chair of the Saskatchewan Prairie Conservation Action Plan (PCAP) — a partnership of 30 agencies and organizations.

Through this role he has been able to share the positive story of ranching with more people — and even bring them out to his ranch.

For example, during the province’s annual native prairie appreciation week in June, the Society for Range Management has often used his ranch as a place for tours. Years ago, his ranch was also one of the stops on a week-long agriculture tour for teachers.

“We’ve taken a bus load of educators out and showed them different [range] management styles

Wildlife Abounds in Costa Rica

January 11 - 24, 2017

Join Leslie on our tour, **Nature Trails of Costa Rica, January 11-24, 2017**. On this tour you visit a variety of landscapes encountering monkeys, sloths, colourful birds, lively frogs, brilliant butterflies and many others. You also meet individuals who are working to keep Costa Rica’s natural world a paradise. Pura vida!

Your tour host, Leslie Tuckek, is an ecological educator who has guided tours for the University of Saskatchewan Distance Education for eight years. Leslie is an avid birder, nature lover and wildlife photographer.



For more information & detailed itinerary contact:

Leslie Tuckek

leslie.tuckek@usask.ca
Tel: 306.230.0941

Ruth MacRae

ruth@worldwideecotours.com
Tel: 1-888-778-2378

and tried to educate them a little bit about what prairie is, and the diversity of plants and animals that it provides. I think that is what's lacking in most of the general public," said Balas.

But through the PCAP, Balas is happy to see native prairie school programming that is part of the curriculum.

"I was the initial rancher for the 'Adopt a Rancher Program' when it was in its pilot. It's a group of Grade 10 students that take a unit in their science class in conjunction with a rancher. It all ends up with a ranch visit for the students. They get to spend a day on the prairie and actually test some of the stuff they've learned through the classroom. It has since expanded to numerous schools and we're getting inquiries from all over the province."

Through PCAP, Balas was also part of a committee that helped develop a range health assessment booklet for land managers and extension professionals. To pilot its use, training sessions that were held included a stop at his ranch. Along with participants from across the Prairie Provinces, Balas said he benefited as well.

"We had soil scientists from the U.S. come up to the ranch and show how they evaluated range sites and assessed range health. For me that was very educational because I've learned everything by making my own mistakes or listening to them," said Balas.

Ranchers Research

In light of the federal Species at Risk Act (SARA), Balas also collaborated with other ranchers to become more knowledgeable about the role they could play as land managers.

"About seven or eight years ago, a group of us got wind of the South of the Divide Multi-Species at Risk Action Plan for southwest Saskatchewan,

which focuses on the recovery of 13 species in the area, and the planning that was going on.

"We got together, had some discussions about it and decided to form a group called the Ranchers Stewardship Alliance Inc. (RSAI) to deal with issues that would affect ranching and grasslands through the Species at Risk Act," said Balas, who serves as president of the new organization.

To be proactive, the ranchers pursued funding to do their own studies.

"We looked at what other jurisdictions around the world have done about species at risk and the land managers that are creating habitat for them," said Balas, noting they developed site level habitat targets that ranchers can work towards.

When the South of the Divide Conservation Action Program Inc. (SODCAP Inc.) was officially established in 2014 as a board-governed partnership — represented by industry, agriculture and environmental non-governmental organizations — Balas was also elected to the board as RSAI's representative and co-chair.

SODCAP Inc. fosters engagement, extension and projects with land managers.

"This last fall we had a tour for more governmental staff. We took them around to a few ranches in the SOD area. We showed them some of the habitat attributes we are measuring for — for species at risk and some of the landscapes."

While Balas seems to be wearing many hats when it comes to all the boards and committees he serves on, he said he finds "it's pretty simple when you boil it down to one common denominator."

"The one thing that makes it all feasible and possible is that the focus is always on healthy native prairie and it doesn't matter who I'm representing

— that is their main goal. Some of them have different avenues of addressing it, but the bottom line is still to have healthy native prairie that provides habitat for species at risk and a living for the people that manage it every day."

Reward


In conclusion, Balas said that it's easy to find the reward for all the time and effort he has dedicated to conservation.

"For me, it's the increased awareness there is for native prairie and the fact that ranchers are telling the story that ranchers are responsible for the native prairie that's left — and the health of it.

"And just recognition that people are gaining more awareness of the connection between ranching and range. Ranchers' management is what has kept the range healthy and the species — whether they're endangered or not — are still out here for everybody to enjoy. That I think is my reward," said Balas, adding that he is thankful to be out on the land on a daily basis and to be able to enjoy the special connection he has with it.

"For me, I've managed to live my life out looking at native grass and learning something every day about it. I think that's a reward in itself."

In the meantime, for the Sprague's Pipit that shares the Balas ranch, there seems to be a parallel that comes to symbolize Balas's own philosophy. While it is a grassland songbird that nests on the ground and is rarely seen, it can most easily be recognized by its song when it takes to the sky for lengthy aerobatics at lofty heights.

Likewise, the ranchers that characteristically liked to be left alone have also proven that amazing things can happen from the ground up. 

RED-EYED VIREO MIMICS AN OLIVE-SIDED FLYCATCHER

Ron Jensen

1027 King Crescent

Saskatoon, SK S7K 0N9

rjes@shaw.ca

We were at Kimball Lake campground in Meadow Lake Provincial Park from June 29 to July 5, 2014. This note is an observation of a Red-eyed Vireo (*Vireo olivaceus*) that sang each morning from a birch tree about halfway between our campsite and the beach.

On the morning of June 30 at about 07:00 h, a Red-eyed Vireo started to sing the typical species song. Water levels were high in the park with our site adjacent to flooded woodland. Therefore, also hearing an Olive-sided Flycatcher (*Contopus cooperi*) calling was not unreasonable. I made a mental note to look for the Olive-sided Flycatcher.

Two days later, I set off to see the Red-eyed Vireo and the Olive-sided Flycatcher. I soon found the Red-eyed Vireo singing at the top of a white birch. The Olive-sided Flycatcher was not to be seen, but it also called from the same white birch. The vireo continued singing and the flycatcher continued to call. Where exactly was that flycatcher hiding? I trained my binoculars on the singing vireo. I could clearly see the vireo singing as it moved and fed. To my amazement, when the flycatcher called, the sound came not from an Olive-sided Flycatcher, but the Red-eyed Vireo!

A vireo accurately mimicking an Olive-sided Flycatcher. Now that the source of the Olive-sided Flycatcher call was resolved, I wondered if Red-eyed Vireos were known mimics of other species. Where had this vireo learned to sing? Had this behaviour been reported before?

Bent (1965) reported "Several



Olive-sided Flycatcher. Photo credit: Nick Saunders

observers have noticed that the bird [Red-eyed Vireo] occasionally introduces a phrase resembling a note of the crested flycatcher" and Francis H. Allen (MS.) says "I have heard it [Red-eyed Vireo] imitate the olive-sided flycatcher and the bluebird."¹ Bent states the quote came from an article published by Allen in Natural History. However, thanks to Stuart Houston, I can state with confidence that Allen may have said those words but they were not published in the Journal Natural History as referenced by Bent.

Additional literature searching found the following attributed to Mr. F.H. Allen, who was quoted saying " ... has heard a Red-eyed Vireo introduce the call of the Bluebird in his song ... "²

A Red-eyed Vireo recorded at Ampersand Pond in the Adirondack Mountains by Peter Paul Kellogg and John Miller included a phrase from a Great Crested Flycatcher. "The audio file by Peter Paul Kellogg ...



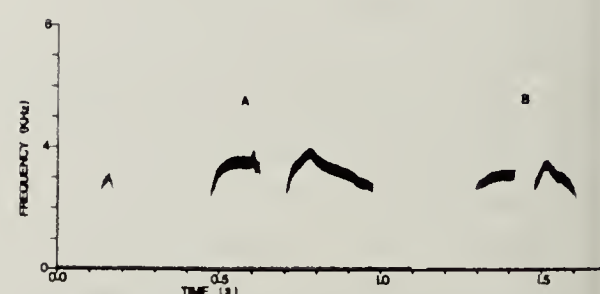
Red-eyed Vireo. Photo credit: May Haga

is ML 11825 <http://macaulaylibrary.org/audio/11825>.³ The call of Great Crested Flycatcher is readily audible."⁴

Ross James has the following comments:

"Near Dwight (Muskoka District), Ontario, on 12 July 1970, I recorded the song of a red-eyed vireo ... that periodically included a phrase, distinctly set off from the rest of its song, that closely resembled the song of an olive-sided flycatcher ... I heard this particular vireo singing through the summer, always with the flycatcher phrase in the song. Olive-sided flycatchers lived in the general area, but none were heard within half a kilometer of this vireo.

"Comparing the vireo and flycatcher songs (Fig. 1) below, the vireo version omitted the first weak syllable of flycatcher song, the remaining two syllables are nearly



1 Wide-band spectrographs (Kay Electric Sonograph 6061B) comparing (A) an olive-sided flycatcher (*Nuttallornis borealis*) song with (B) a similar-sounding phrase uttered by a red-eyed vireo (*Vireo olivaceus*). (A) Last two syllables, maximum frequency 1.9 KHz, minimum frequency 2.2 KHz, duration 0.51 s. (B) Maximum frequency 3.6 KHz, minimum frequency 2.2 KHz, duration 0.51 s.

identical in form and frequency in both species, but the vireo sang these two syllables in a much shorter time than the flycatcher. Although red-eyed vireo song can be highly variable, particularly when the singer is stimulated by playback of the species-specific song (Lemon 1971), none of the published sonograms of this species resemble the 'flycatcher' phrase sung by this bird (Lemon 1971; Borror 1972), nor have I ever heard such a song from a red-eyed vireo in 10 years of studying vireos."⁵

Figure 1 is provided with permission of the author, Ross James.

In reference to hybridization of similar species resulting in unusual or aberrant songs as suggested by Borror 1961⁶, Ross James questions whether hybridization among vireo species could account for the aberrant songs. He concludes with this statement: "The presence of these unusual songs in red-eyed and warbling vireos strongly suggests that song learning also plays a part in song development in these species."⁵ James also states that "Similarly, a red-eyed vireo singing songs like those of a Towhee (*Pipilo sp.*) (Borror 1961) could not be the result of hybridization between these two species."⁵

Donald Kroodsma says "I've heard these vireos sing a mimicked call of a blue jay, for example, and other borrowed sounds ... I hear him [red-eyed vireo in his back yard] running through the familiar songs in his repertoire. Slower now, every few seconds ... there's the goldfinch imitation again, the 'question,' the whistle with rising inflection that the goldfinch uses to punctuate his song."⁷

Paul Driver, on blogspot⁷, posted two sonograms and comments that "It is well-known that red-eyed vireos incorporate notes of other species into their songs. This bird included a Carolina Wren-like phrase and an



Figure 2. Mixed wood forest from Kimball Lake near Red-eyed Vireo site. Photo credit: Ron Jensen

Eastern Wood-Pewee-like call in its repertoire."⁸


A cautionary note written in 1923 by Charles W. Townsend: "I am convinced that mimicry among our American birds is more common than is generally supposed. It follows, therefore, as a minor corollary that, while sight records are worthless unless the observer is known to be accurate, records by hearing alone, even if the recorder is an expert, may be worthless, owing to this prevalence of mimicry. Above all, one should be aware of the mimicry of that specialist, the European Starling."²

To summarize, Red-eyed Vireos have been reported making the calls of eight different species: Olive-sided Flycatcher, Great Crested Flycatcher, bluebird [presumably eastern], towhee of unknown species, American Goldfinch, Carolina Wren, Eastern Wood-Pewee and Blue Jay.

My casual observation of a Red-eyed Vireo that included the call of an Olive-sided Flycatcher in his song repertoire turned into an interesting detective hunt.

I thank those who responded to e-mails searching for information on mimicry by Red-eyed Vireos: Stuart Houston, Philip Taylor, Greg Budney, Land Elliot, Andrew Horn, David

Kroodsma, John Neville and Russ Wigh. A further note of appreciation to the *Blue Jay* editor and an anonymous reviewer for their useful comments and beneficial edits.

1. In Bent, Life Histories of North American Wagtails, Shrikes, Vireos and Their Allies, Dover Edition, 1965. pp 343
2. Townsend, Charles W, 1924. Mimicry of Voice in Birds. Read at the meeting of the American Ornithologists' Union in Cambridge, October 9, 1923. Published in The Auk 41(4) pp 541-552 Oct 1924.
3. Audio recording, ML 11825, red-eyed vireo (*Vireo olivaceus*), Kellogg, Peter Paul and John Miller, United States, New York, Adirondack Mountains, Ampersand Pond, May 31, 1959, Macaulay Library, www.macaulaylibrary.org, Cornell Lab of Ornithology.
4. Greg Budney personal e-mail correspondence.
5. James, Ross D. 1976. Unusual songs with comments on song learning among vireos. Can. J. Zool. 54(7) 1223-1226.
6. Borror, D.J. 1961. Intraspecific variation in passerine bird song. Wilson Bull. 73, 57-78.
7. Driver, Paul. 2010 July. 33 seconds. <http://pjdeye.blogspot.ca/2010/08/red-eyed-vireo-mimicry.html>
8. Kroodsma, Donald E. 2005. The singing life of birds. The art and science of listening to birdsong. Houghton Mifflin Co. Boston, New York. 



SEPTEMBER 30 – OCTOBER 2, 2016 SASKATOON, SASKATCHEWAN HOSTED BY SASKATOON NATURE SOCIETY

The Saskatoon Nature Society is pleased to host Nature Saskatchewan's Fall Meet in Saskatoon, September 30 to October 2, 2016. Join us in celebration of Whooping Cranes – welcome visitors to our region at this time of year. And if you've really seen these amazing large cranes too many times already or want to do something more active, we have some interesting field trip alternatives. Optional field trips are also offered for late Friday evening and for Sunday.

We'll be meeting at the Royal Canadian Legion Hall at 3021 Louise Street (see www.nutanalegion.ca for map and contact information). All field trips will depart from and return to this location as well.

Friday, September 30

6:00 p.m. Registration & Reception

Light refreshments and cash bar, displays to view (supper on your own).

7:30 p.m. Program

- Welcome and opening remarks
- Larry Morgotch

Images of Nature Event:

Any member may show up to 10 images that illustrate natural history interests and activities, and may speak briefly about them (no longer than two minutes, please). Images labelled with your name should be left with the projectionist before the start of the program. Digital images may be individual files, assembled as a PowerPoint or similar type of presentation, or an executable file if you are using a slideshow editing program. Please be sure your presentation runs on a standard PC. Individual images must be in jpeg format with the longest dimension of no more than 1,500 pixels. Name your images so that they display in the correct order. Digital images should be stored in a folder indicating your name and saved on a USB flash drive.

– Overview of field trips

9:00 p.m. Owl Banding Field Trip

Saturday, October 1

Breakfast on your own

8:00 a.m. Whooping Crane Field Trip

8:00 a.m. Peregrine Falcon Field Trip

8:30 a.m. Wanuskewin Field Trip

4:00 p.m. Nature Saskatchewan Business Meeting, Nutana Legion Report from the Board, Resolutions, Members' Forum

6:00 p.m. Cocktails (cash bar)

6:30 p.m. Banquet

7:30 p.m. Awards Presentation

8:00 p.m. Keynote Speaker: Brian Johns

"The secret life of Whooping Cranes past, present and future." Brian is President of the Whooping Crane Conservation Association and retired from a distinguished career as coordinator of the Whooping Crane monitoring program for Canadian Wildlife Service.

Sunday, October 2

Breakfast on your own

9:00 a.m. Blackstrap Lake Field Trip

Driving Directions: From Circle Drive, turn west on to Taylor Street East. Get into the left lane and take the first left turn on to Arlington Avenue. Drive one very long block and turn left on to Louise Street. Follow Louise around the corner to the right, and look for the Legion Hall and parking lot on your right.

Many of our field trips have size limits, so register for the meet early to secure your spot. Note: All registration fees except students increase by \$15 after September 1, 2016.

Registration: Register by mail using the form that accompanies this article, or complete, save and email the online (fillable PDF) form that is posted on both Nature Saskatchewan's website (www.naturesask.ca/get-involved/fall-meet) and the Saskatoon Nature Society website (www.saskatoonnaturesociety.sk.ca). Complete instructions for registration and payment are provided on each website.

SEPTEMBER 30 – OCTOBER 2, 2016 SASKATOON, SASKATCHEWAN

Accommodation Options

Do your research and book early for better deals. For further information, contact Tourism Saskatoon at 1-800-567-2444 or consult its website at www.tourismsaskatoon.com. There are also a number of Saskatoon listings on Airbnb that may be worth checking out.

HOTEL

These hotels are relatively close to our meeting location, of reasonable quality and provide breakfast. Note that you can get a better rate if you are willing to prepay.

Best Western Plus East Side:
3331 8th Street E
306-986-2400

Hampton Inn Saskatoon South:
105 Stonebridge Boulevard
306-665-9898

These slightly less expensive alternatives are near the airport. The drive to our meeting place is relatively easy from there, following Circle Drive across the river to the Taylor Street exit.

Day's Inn Saskatoon:
2000 Idylwyld Drive North
306-242-3297

Super 8 Saskatoon
near Saskatoon Airport:
706 Circle Drive East
306-384-8989

Note: there is more than one Super 8 in Saskatoon. This one is the better of them.

Hampton Inn and Suites by Hilton
110 Gateway Boulevard
306-933-1010

Accommodation Continued

BED & BREAKFAST:

Glacier Park Bed and Breakfast:
46 Harvard Crescent
306-381-0912
www.glacierparkbb.com

Inn-Chanted Bed and Breakfast:
210 Laycoe Crescent
306-651-5006
www.bbcanada.com/13229.html

Prairie Rose Bed and Breakfast:
526 Guelph Crescent
306-374-7204
www.bbcanada.com/14424.html

Wild Rose Bed and Breakfast:
1426 Acadia Drive
306-979-6640
www.wildrosebb.com

CAMPING

Gordon Howe Campground:
1640 Avenue P South
135 electrical & water sites
plus 12 tent sites
1-866-855-6655

Nature Saskatchewan Fall Meet

September 30 - October 2, 2016

Saskatoon, Saskatchewan

www.saskatoonnaturesociety.sk.ca

Registration Form (Please Print)

Names: _____

Address: _____

City _____ Prov. _____

Postal Code _____ Phone: _____

e-mail: _____

Registration Fee includes Friday evening social,
Saturday business meeting and
Saturday evening banquet.

After Sep 1: \$80.00 X _____ = \$ _____

Student fee: \$65.00 X _____

Additional Banquet Tickets:
\$32.00 X _____ = \$ _____

Please indicated if you have any special dietary
needs for meals (allergies/vegetarian/vegan/etc.)

Saturday, October 1 Field Trip Options:

Please choose only one option.

Whooping Crane \$40.00 X _____ = \$ _____

Maximum 55 participants.

Includes bus transport & lunch.

Wanuskewin \$10.00 X _____ = \$ _____

Includes bus transport
and admission

Falcon Hunt \$0.00 X _____

Maximum 20 participants.

No fee. Car-pool transport.

TOTAL OF ALL FEES = \$ _____

Additional Field Trips (no fees)

_____ Friday, Sep 30 **Saw-whet Owl Banding**
(Maximum 25 participants)

_____ Sunday, Oct 2 **Blackstrap Lake Field Trip**

Please make cheque payable to:
Saskatoon Nature Society

Mail your completed form to:

Nature Saskatchewan Fall Meet
2327 Lansdowne Avenue
Saskatoon, SK. S7S 1G9

2016 FALL MEET – FIELD TRIPS

NOTE: All field trips depart from the Royal Canadian Legion Branch 362 at 3021 Louise St.

Owl Banding Field Trip

9:00 p.m. Friday (limit of 25 people, no fee, carpool).

Join Marten Stoffel at his saw-whet owl fall migration station just north of Saskatoon. These owls only move after dark so we will leave in a car convoy at 9 p.m. Participants should be back in Saskatoon shortly after 11 p.m. Priority will be given to registered out-of-town participants. This trip may be cancelled if the weather is bad.

Whooping Crane Field Trip

8:00 a.m. Saturday (limit of 55 participants, fee is \$40, travel by bus, lunch provided).

We will travel by bus to locations east of Saskatoon where whooping cranes have frequently been seen in recent years. There are no guarantees, but in previous years our success rate for finding whoopers has been high. We also expect to see sandhill cranes and migrating waterfowl. We will stop for lunch in Cudworth and, if time permits, we'll take a walk to look for other migrants. Bring binoculars, a water bottle and appropriate footwear.

Peregrine Falcon Hunt

8:00 a.m. Saturday (limit of 20 people, no fee, carpool, morning only).

Watch the world's fastest animal – the peregrine falcon – catch its prey. We will carpool and drive approximately 30 minutes outside of the city to where the falcon (trained by falconer Dr. Lynn Oliphant) will hunt. This trip will require a fair bit of walking and standing. It may be cancelled if the weather is poor due to limitations on the falcon's ability to fly and hunt properly.



Photo credit: Annie McLeod

Wanuskewin Heritage Park

8:30 a.m. Saturday (Fee is \$10, travel by bus, lunch available for purchase on-site).

Human history and natural heritage come together in Wanuskewin Heritage Park. This tour will offer the opportunity to learn about 6,000 years of habitation in this rich natural area. It will include activities guided by Wanuskewin interpreters and a chance to ramble and explore over 6 km of trails along the Opimihaw Creek Valley and across the grassy uplands. Lunch can be purchased in the Visitor Centre restaurant, and there are galleries and a gift shop to explore if the weather is bad.

Blackstrap Lake Field Trip

9:00 a.m. Sunday

This optional field trip is ideal for folks who are travelling home to points south of Saskatoon. We'll travel in a vehicle convoy to look for migrating waterfowl that congregate on Blackstrap Lake in the fall, and stop for lunch at a picnic site in the park (you can pick up something to eat during the trip at the Subway at the entrance to Dundurn). Spend an hour with us, or a few; you can leave the trip at any time.



2016 SCHOLARSHIP WINNER HEATHER TOEWS


The Margaret Skeel Graduate Student Scholarship was established by Nature Saskatchewan with the aim to stimulate research that will increase knowledge of all aspects of the natural world and human relation with nature, and to promote conservation and sustainable use of natural resources. The \$2,000 scholarship is awarded annually to assist a graduate student attending a post-secondary institution in Saskatchewan.

The 2016 scholarship recipient is Heather Toews who is working toward her Ph.D. in geography at the University of Saskatchewan. The focus of her research is to explore how, and to what extent, scientific knowledge is used by decision makers in wetland management. This will provide guidance on how to improve the policy development and land use planning decisions that impact wetlands, with an overall

goal of preventing further wetland habitat loss. Results of her studies will contribute to conservation of wetlands and their biodiversity, and to better understanding of the relationship between humans and nature.

We congratulate Heather and wish her best of luck in pursuit of her studies.

Heather is a professional biologist and has a M.Sc. in Integrated Water Resources Management. She began her Ph.D. in Geography in the fall of 2015. Her research interest stems from her passion for wetland conservation and her experience as an environmental consultant. Heather's interest in conservation is not limited to wetlands; she is also extremely passionate about the conservation of native prairie. Her dedication to nature is also exemplified by her research on the reproductive behaviour of the Northern Flicker, her work in the revegetation of mined areas in Saskatchewan and Manitoba, and by her time educating Saskatchewan lake residents on healthy shoreline living. Moreover, she spent time volunteering as a field researcher and educator for the protection of loggerhead sea turtles in Greece, and as a bird bander in Saskatchewan and British Columbia.

Heather's research compliments the goals and vision of Nature Saskatchewan, by contributing to not only the conservation of wetlands and their biodiversity, but also to understanding the relationship that humans share with nature. 





Wild Birds Unlimited[®]
Nature Shop

*We Bring
People &
Nature
Together*

330A-2600 8th St. E, Saskatoon
306-955-BIRD (2473)
www.wbu.com/saskatoon

ADDITIONAL OBSERVATIONS OF PUTATIVE HOST SPECIES FEEDING ONLY COWBIRD FLEDGLINGS

Spencer G. Sealy
Department of Biological Sciences
University of Manitoba
Winnipeg, MB R3T 2N2
Spencer.Sealy@umanitoba.ca

The time when a young bird leaves (fledges) from the nest until it becomes independent, i.e., the fledgling period,^{1,2} is an under-studied phase of the annual cycle of birds, particularly of hosts of brood-parasitic cowbirds (*Molothrus* spp.). Smith³ reported that fledgling Song Sparrows (*Melospiza melodia*), colour marked to facilitate individual recognition, experienced no significant reduction in survival due to cowbird parasitism, whereas evidence from other studies suggests otherwise. In a study of reproductive success of Indigo Buntings (*Passerina cyanea*), reduced survival of fledglings was found in which juvenile buntings fledged from parasitized nests were 82 per cent less likely to return to natal areas in their second year than juvenile buntings from unparasitized nests.⁴ This result has been augmented by numerous anecdotal field observations⁵⁻⁸, and results of a radio-telemetry study⁹ of hosts that tended cowbird fledglings but none of their own. The high frequency of observations of hosts feeding only fledged cowbirds points strongly towards the host's fledglings having died prior to or soon after leaving the nest rather than being fed elsewhere, possibly by the other host parent.^{7,8} These observations are usually assumed to involve the species that reared the cowbird, being mindful that individuals of other species occasionally join in the feeding.^{10,11}

I document five observations of putative hosts feeding only

fledged Brown-headed Cowbirds (*M. ater*). The observations were made between 1986 and 1993, one in southwestern Saskatchewan (near Val Marie), one involving two "host" species from southwestern Manitoba (Turtle Mountain Provincial Park), and three during studies of cowbird host use in the dune-ridge forest that separates Lake Manitoba and Delta Marsh, Manitoba.¹² These observations augment a compilation of more than 225 previous observations of family groups consisting of parasitized species feeding only cowbird fledglings (Table 1), but accurate documentation of survival of host and cowbird fledglings will require tracking radio-marked, known-age fledglings over the entire fledgling period.

Stages of Cowbird Development

For the observations presented here, I assigned each fledgling Brown-headed Cowbird to one of four main stages of development between leaving the nest and independence, as proposed by Woodward¹³: inactive, active, super-

active, and independent. The inactive stage is an extension of the late nestling period, and lasts for up to three days; fledglings occasionally utter chipping sounds and generally perch quietly except when being fed. The active stage lasts most of the fledgling period, from three to 13 days out of the nest; characterized by hourly bouts of flight, pecking, pecking and walking, and dropping to the ground. The super-active stage is from 12 to 23 days of age out of the nest and three to 11 days to independence; young constantly flying after hosts, actively begging with quivering wings and loud calling. Brown-headed Cowbird fledglings gain independence 16 to 28 days after leaving the nest, when adults have stopped feeding them.

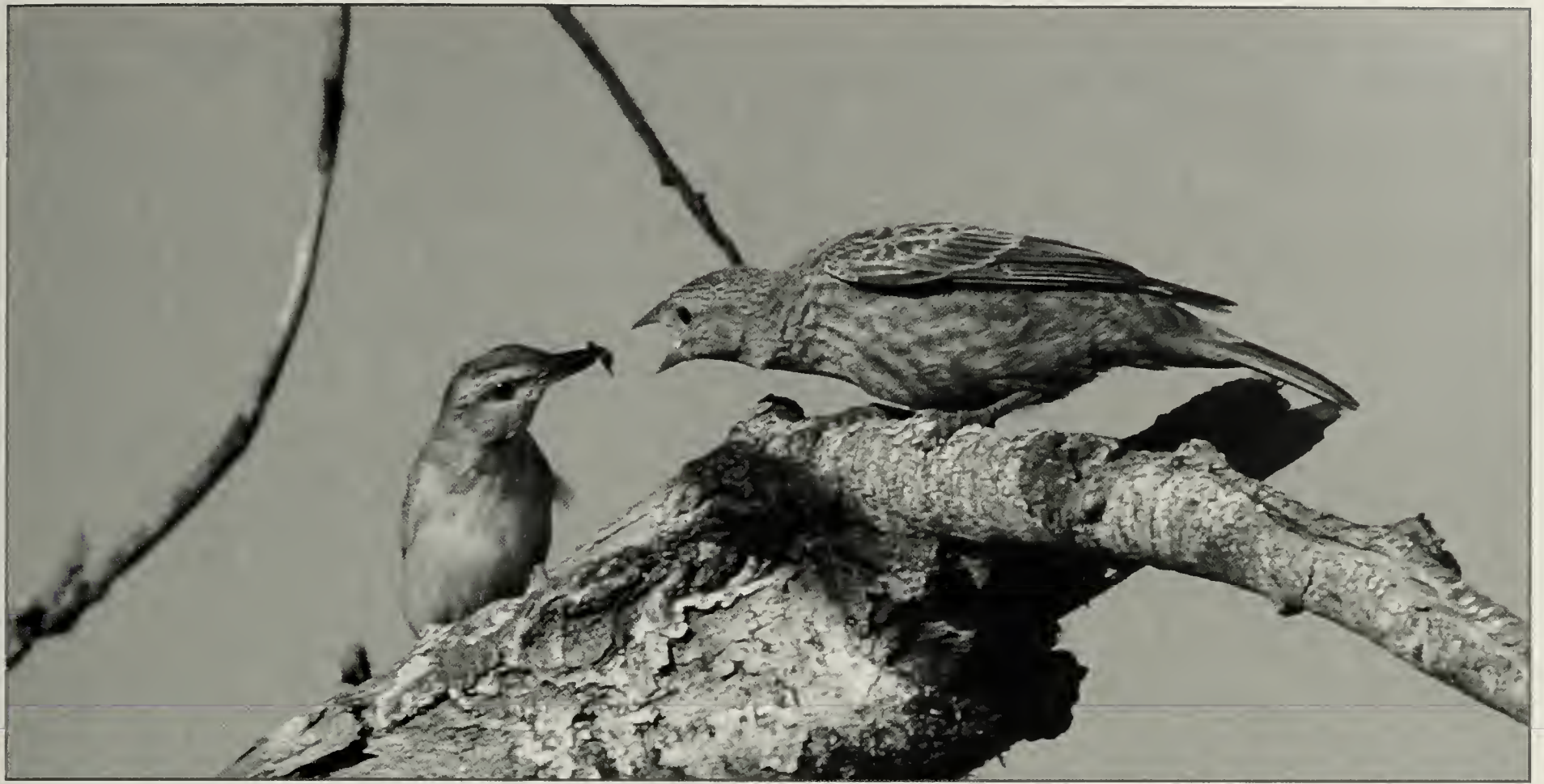
Observations

Common Yellowthroat/Chestnut-sided Warbler (Active stage of Woodward¹³; cowbird three to 13 days out of nest) – For almost 40 minutes, I watched a Brown-headed Cowbird fledgling initially begging loudly and being fed alternately by a male Common Yellowthroat (*Geothlypis trichas*)

LOCALITY	NUMBER OF RECORDS OF ADULTS FEEDING ONLY BROWN-HEADED COWBIRD FLEDGLING(S) (%)	SOURCE
Sierra Nevada, CA	18 of 25 (72%) ^a	Airola ⁵
Illinois	107 of 127 (84%)	Robinson ⁶
North America/Mexico ^b	97 of 102 (95%)	Rasmussen and Sealy ⁸

TABLE 1: Number of records of host species recorded only feeding Brown-headed Cowbird fledglings. Note: data are from three separate studies; each record consists of an observation of one or two adult birds, the putative parents, feeding only a cowbird fledgling(s).

- a. Interpreted another way: of 25 different family groups of fledglings, involving eight putative host species accurately determined to include Brown-headed Cowbird young, 18 (72 per cent) contained no host young, whereas seven groups consisted of adults feeding not only a cowbird fledgling but also at least one of their own young. In addition, of eight groups with >1 cowbird young, none contained host young.⁵
- b. Records of family groups involving 45 host species extracted from the literature from throughout the Brown-headed Cowbird's range, excluding the data summarized in the two rows above.



Red-eyed Vireo feeding a fledgling Brown-headed Cowbird. Photo credit: Christian Artuso

and a male Chestnut-sided Warbler (*Setophaga pensylvanica*). When first observed at 16:05 hr CDT on July 9, 1986, the cowbird was perched conspicuously on a dead branch approximately 1 m high at the edge of a mowed clearing in Turtle Mountain Provincial Park (49°05 N, 100°25 W), Manitoba. The Common Yellowthroat fed the cowbird nine times and the Chestnut-sided Warbler fed it five times. Neither adult female nor fledglings of either warbler species were observed. The cowbird's original host was not determined but both Chestnut-sided Warblers and Common Yellowthroats nest in Turtle Mountain Provincial Park^{14,15}, and both species have been parasitized in various parts of their ranges.^{16,17}

Song Sparrow (Super-active stage; cowbird 12-23 days out of nest) – On July 21, 1989 at Delta Marsh (50°11 N, 98°19 W), I observed one adult song sparrow feeding a cowbird fledgling. The cowbird flew from perch to perch amid Common Nettle (*Urtica dioica* var. *procera*) in Sandbar Willow (*Salix interior*),

begging loudly between feeding bouts when it was fed bill loads of midges (Chironomidae) by the Song Sparrow, which remained in sight throughout the observation period. In succession, the cowbird followed the sparrow as it gleaned more insects from the nettles then perched momentarily on a downed willow stem where it was fed again. Beginning at 10:21 hr, I observed the cowbird being fed 11 times over 45 minutes before it became obscured by vegetation and was silent, and the Song Sparrow flew from my sight. During this time, I scanned in vain for another adult Song Sparrow that may have been feeding another cowbird, because most parasitized Song Sparrow nests at Delta Marsh received more than one cowbird egg.^{18,19}

Common Yellowthroat (Super-active stage; cowbird 12-23 days out of nest) – On August 20, 1992, at 11:45 hr, my attention was drawn to the vociferous begging of a fledgling cowbird that was being fed by a male Common Yellowthroat. It was fed three times during the next 30

minutes, but neither an adult female yellowthroat nor other fledglings — yellowthroat or cowbird — were observed. The cowbird perched on a fallen stem of a sandbar willow near a clump of nettles, then disappeared. Feeding the single cowbird at this late date is what is interesting, not that the Common Yellowthroat apparently was rearing the cowbird, because across its range the yellowthroat is a frequent host of the Brown-headed Cowbird^{17,20}, including at Delta Marsh.²¹

Two other exceptionally late dates of cowbird parasitism at Delta Marsh, to which the late record for the Common Yellowthroat can be compared, were of cowbird eggs laid during host egg laying in nests of two rarely used host species: Least Flycatcher (*Empidonax minimus*) on July 12, 1980 and Cedar Waxwing (*Bombycilla cedrorum*) on July 13, 1996.²¹ If the yellowthroat's nest was parasitized on or about this date, the cowbird would have been approximately 27 days old when observed on August 20, following the timeline of events of the nesting



House Wren feeding a fledgling Brown-headed Cowbird. Photo credit: W.P. Brown

cycles of the two species.^{22,23}

Orchard Oriole (Active stage; cowbird three to 13 days out of nest) – At 13:30 hr on June 29, 1993, I was alerted to the presence of a cowbird fledgling in a patch of nettles to which an adult male Orchard Oriole had flown to feed a cowbird perched on a willow stem. Returning about 10 minutes later with a second load of midges, the oriole fed the cowbird, flew out of my sight, and did not return over the next 30 minutes. In the meantime, the fully feathered fledgling had become obscured by the nettles, and attempts to locate it were unsuccessful. The female Orchard Oriole was never observed, but observations of colour-marked individuals in this population suggest fledged broods are divided between the parents, with males and females feeding separate young.²⁴ In this case, the female may have been feeding fledged orioles elsewhere, or even another cowbird, as Orchard Oriole nests occasionally receive

more than one cowbird egg at Delta Marsh.²⁴

Vesper Sparrow (Active stage; cowbirds three to 13 days out of nest) – This observation involves apparently the same adult Vesper Sparrow (*Pooecetes gramineus*), which fed five prey loads over 35 minutes to two cowbird fledglings side by side on the ground. These observations were made about 7 km northeast of Val Marie (49°03 N, 107°13 W), Saskatchewan, at 17:35 hr on July 7, 1996. I could not determine whether both cowbirds received a share of the food brought each time, but both fledglings appeared of similar age. No other adults or young, cowbird or host, were observed.

Discussion

Observations presented here of hosts feeding only Brown-headed Cowbird fledglings add to the large body of anecdotal observations that suggests that the cost of cowbird parasitism extends beyond the

nestling period (Table 1), because from most parasitized broods only cowbirds survived, possibly having outcompeted host nestlings in the nest or fledglings after they have left the nest. Of observations of 254 family groups summarized in Table 1, plus the five records presented here, 227 groups (89 per cent) were observed feeding only cowbird fledglings. Additional support for this trend comes from information for hosts of the Bronzed Cowbird (*M. aeneus*) in Central America and northwestern South America, in which none of the 28 groups recorded with fledged cowbirds contained host fledglings.⁷ These observations taken together certainly suggest that costs to the reproductive success of hosts continue into the fledging period, but they fall short of confirming it, and further speculation is not warranted.

The cost of brood parasitism has typically been measured by comparing the number of young

that fledged from unparasitized and parasitized nests, the latter frequently with fewer host young, if any, fledging.²⁵ This figure is likely to be an overestimate, however, if the calculation could be based on accurate determinations of survival of cowbird and host young during the entire fledgling period. Albeit challenging field work, broods of an array of hosts should be radio-tracked from the time all fledglings have left the nests, preferably with all individuals aged from hatching, or at least from fledging, until death or survival to independence is quantified, and fates of each fledgling are identified. Results of a study of radio-tracked broods of Ovenbirds (*Seiurus aurocapilla*) in Minnesota illustrate this point, in that one Ovenbird fledgling tracked from a parasitized nest died after 26 days, the only fledgling that died among 20 nests with no sign of depredation and an empty stomach.⁹ This preliminary result supports the pattern of brood reduction suggested by the anecdotal observations summarized here, but more studies are needed involving recently developed tracking technology focused on cowbird hosts, large and small.²⁶

Many co-workers contributed to the success of the research at Delta Marsh over the years, for which I am grateful. Justin L. Rasmussen engaged in numerous discussions on feeding of fledgling cowbirds and, with Stephen K. Davis, commented on a draft of the manuscript. This work was funded chiefly by the Natural Sciences and Engineering Research Council of Canada, augmented by substantial in-kind support provided by the Delta Marsh Field Station (University of Manitoba). I thank Christian Artuso and W.P. Brown for the use of their photographs.

LITERATURE CITED

1. Woodward PW, Woodward JC (1979) Survival of fledgling Brown-headed Cowbirds. *Bird-Banding* 50:66-68.
2. Middleton ALA, Prigoda E (2001) What does "fledging" mean? *Ibis* 143:296-298.
3. Smith JNM (1981) Cowbird parasitism, host fitness, and age of the host female in an island Song Sparrow population. *Condor* 83:152-161.
4. Payne RB, Payne LL (1998) Brood parasitism by cowbirds: risks and effects on reproductive success and survival in Indigo Buntings. *Behavioral Ecology* 9:64-73.
5. Airola DA (1986) Brown-headed Cowbird parasitism and habitat disturbance in the Sierra Nevada. *Journal of Wildlife Management* 50:571-575.
6. Robinson SK (1990) Population dynamics of breeding Neotropical migrants in a fragmented Illinois landscape. Hagan JM, Johnston DW (Eds.). Pages 408-418 in *Ecology and Conservation of Neotropical Migrant Landbirds*. Smithsonian Institution Press, Washington D.C.
7. Sealy SG, Sánchez J, Campos RG, Marin M (1997) Bronzed Cowbird hosts: new records, trends in host use, and cost of parasitism. *Ornitologia Neotropical* 8:175-184.
8. Rasmussen JL, Sealy SG (2006) Hosts feeding only Brown-headed Cowbird fledglings: where are the host young? *Journal of Field Ornithology* 77:269-279.
9. Peterson SM, Streby HM, Anderson DE (2012) Effects of parasitism by Brown-headed Cowbirds may persist into post-fledging. *Wilson Journal of Ornithology* 124:179-183.
10. Klein NK, Rosenberg KV (1986) Feeding of Brown-headed Cowbird (*Molothrus ater*) fledglings by more than one "host" species. *Auk* 103:213-214.
11. Sealy SG, Lorenzana JC (1997) Feeding of nestling and fledgling brood parasites by individuals other than the foster parents: a review. *Canadian Journal of Zoology* 75:1739-1752.
12. MacKenzie DI (1982) The dune-ridge forest, Delta Marsh, Manitoba: overstory vegetation and soil patterns. *Canadian Field-Naturalist* 96:61-68.
13. Woodward PW (1983) Behavioral ecology of fledgling Brown-headed Cowbirds and their hosts. *Condor* 58:151-163.
14. Edie S, Maynard J, Taylor P (2003) Chestnut-sided Warbler (*Dendroica pensylvanica*). Pages 321-322 in *The Birds of Manitoba*. Manitoba Naturalists Society, Winnipeg, Manitoba.
15. Taylor P (2003) Common Yellowthroat (*Geothlypis trichas*). Page 337 in *The Birds of Manitoba*. Manitoba Naturalists Society, Winnipeg, Manitoba.
16. Friedmann H, Kiff LF (1985) The parasitic cowbirds and their hosts. *Proceedings of the Western Foundation of Vertebrate Zoology* 2:226-302.
17. Friedmann H, Kiff LF, Rothstein SI (1977) A further contribution to knowledge of the host relations of the parasitic cowbirds. *Smithsonian Contributions to Zoology*, Number 235.
18. McLaren CM, Woolfenden BE, Gibbs HL, Sealy SG (2003) Genetic and temporal patterns of multiple parasitism by Brown-headed Cowbirds (*Molothrus ater*) on Song Sparrows (*Melospiza melodia*). *Canadian Journal of Zoology* 81:281-286.
19. Woolfenden BE, McLaren CM, Sealy SG, Gibbs HL (2004) Community-level patterns of parasitism: use of three common host species by a brood parasitic bird, the Brown-headed Cowbird. *Écoscience* 11:238-248.
20. Hofslund PB (1957) Cowbird parasitism of the Northern Yellow-throat. *Auk* 74:42-48.
21. Sealy SG (In preparation) Cowbird hosts at Delta Marsh.
22. Lowther PE (1993) Brown-headed Cowbird (*Molothrus ater*). In *Birds of North America*. Number 47. (Poole A, Gill F, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.
23. Guzy MJ, Ritchison G (1999) Common Yellowthroat (*Geothlypis trichas*). In *Birds of North America*. Number 47. (Poole A, Gill F, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.
24. Sealy SG (1980) Breeding biology of Orchard Orioles in a new population in Manitoba. *Canadian Field-Naturalist* 94:154-158.
25. Ortega CP (1998) *Cowbirds and Other Brood Parasites*. University of Arizona Press, Tucson.
26. Lorenzana JC, Sealy SG (1999) A meta-analysis of the impact of parasitism by the Brown-headed Cowbird on its hosts. *Studies in Avian Biology* 18:241-253. 



FIGURE 1: European Starling in full song display, where it belongs, on a rooftop in England (Alnmouth, Northumberland, May 24, 2010). Note yellow bill (typical of spring condition) and speckling limited to the lower abdomen. Photo credit: Peter Taylor

HISTORY OF THE EUROPEAN STARLING IN MANITOBA AND NEARBY STATES AND PROVINCES

Peter Taylor
P.O. Box 597
Pinawa, Manitoba R0E 1L0
taylorp@granite.mb.ca

Randall D. Mooi
Curator of Zoology
The Manitoba Museum
190 Rupert Avenue
Winnipeg, Manitoba R3B 0N2
rmooi@manitobamuseum.ca

Robert J. Parsons
68 Thatcher Drive
Winnipeg, Manitoba R3T 2L3
parsons8@mts.net

This article traces the arrival of the European Starling (*Sturnus vulgaris*; hereafter, simply starling) in Manitoba from early reports in the 1920s through initial breeding and

wintering records in the 1930s to full establishment by about 1950. Current status and recent trends are also discussed, and comparisons are made with nearby regions and with other invasive bird species.

The misguided introduction of starlings in New York in 1890 and 1891 (with unsuccessful attempts elsewhere) and their subsequent rapid population growth and range expansion, reaching the Pacific Coast in the 1940s, have been described in detail by Kessel and several authors she cites.¹ Though sometimes considered beneficial for their consumption of insect pests, starlings (Figures 1 to 3) are not well regarded in general for several reasons: aggressive competition with native species for nesting cavities,

accumulation of droppings in or on buildings (especially at winter roosts), consumption and contamination of livestock feed, and damage to fruit crops.²⁻⁵

The arrival of starlings in new areas, preceded by their bad reputation, often drew attention as indicated by the many references cited by Kessel.¹ “Broad brush” maps depicting the starling’s spread across the continent are limited by sparse published data for the Prairie Provinces.^{1,6} Mapping is also complicated by the westward expansion of winter range in advance of the breeding range.¹ Extrapolation of Kessel’s map for the lower 48 United States indicates that the breeding-range boundary swept across southern Manitoba from east

to west during the 1930s,¹ while Johnson and Cowan's map shows a sweep from south to north during the late 1930s to the early 1960s.⁶ The advancing range boundary was diffuse, with some outlying records well in advance of the main front; for example, just three years separated the first nesting records in Minnesota (1931) and Alberta (1934).^{1, 7, 8} These preceded nesting records for both Manitoba (1935) and Saskatchewan (1939), though territorial behaviour was reported in Manitoba as early as the mid-1920s (see below). In this context, Wing distinguishes in his 1943 review between the progress of the *population front* and that of the pioneers that make up the *advancing front*.⁹

The diffuse, moving boundary reflects the starling's capacity for long-distance migration, combined with the highly variable movements of immature birds, both in distance and direction (see discussion of migration patterns, below).¹

Initial sightings in Manitoba

Many early starling sightings in Manitoba, as well as some in Saskatchewan, were reported in newspaper columns and correspondence, especially in A. G. Lawrence's weekly *Chickadee Notes* column in the *Winnipeg Free Press* and the *Wild Wings* column by various authors in the *Winnipeg Tribune*.^{10, 11} Space limitations prevented a detailed review of these reports in *The Birds of Manitoba*.¹¹ The current article is based in part on a review of over 150 of these columns that mention starlings; an annotated list is available on request from the authors.¹⁰

The first starling sightings in the Prairie Provinces were reported by J. D. Carruthers at Gainsborough, Saskatchewan, just west of the Manitoba boundary: five birds on



FIGURE 2: European Starling fluffed up against the cold at a Pinawa, Manitoba feeder, January 2, 2014. Note dark bill (typical of winter condition) and extensive speckling around head. Photo credit: Ed Huisman

top of a bank building in fall 1922, five on a building in 1924, and three found dead after a storm also in 1924. Perhaps because these sightings were just outside Manitoba, they were not mentioned in Lawrence's columns until 1948.¹⁰ These Saskatchewan sightings were followed by reports from Somerset, Manitoba by W. H. Talbot: two starlings, dramatically described as "destroying a building while trying to make a nesting place", were shot but not preserved in summer 1925, while two were "fighting with house sparrows in a church steeple" in spring 1926.¹⁰ Similarly, two starlings in the St. James area of Winnipeg were "fighting with house sparrows on a picture theatre" when seen by J. Haddow on June 15, 1926.¹⁰ Fierce competition with house sparrows was also described in the first Minnesota breeding report.⁷ Seemingly more peaceable was a lone starling at Kelloe, Manitoba in 1927; first seen on June 1, it remained all summer "chumming

with the blackbirds".¹⁰

Surprisingly, the next Manitoba starling report came from the Hudson Bay coast: a specimen found freshly dead in an unused building at York Factory on May 11, 1931.¹² The specimen was found by H. Conn, a Hudson's Bay Company manager, and verified by A. C. Lloyd and G. M. Sutton, but unfortunately could not be preserved.¹² Also in 1931, a lone starling was observed on August 12 by F. B. Anderson near Winnipeg's Louise Bridge.¹⁰

Increasing numbers, breeding, and overwintering

Reports became more frequent in the mid-1930s, corresponding closely with the expansion of the breeding range as defined by Kessel.¹ On February 6, 1934, V. W. Jackson (professor of biology at the University of Manitoba) received a specimen found dead at Gunton by M. Gooch on an unknown date, likely in January or early February 1934.¹⁰ The specimen was apparently



FIGURE 3: Flock of European Starlings gathered on an electrical transmission tower prior to roosting near Great Falls, Manitoba, October 30, 2015. Photo credit: Peter Taylor

not preserved. J. English noted two starlings at Fort Whyte, Winnipeg in spring 1934, while Mrs. P. Durham reported one overwintering at La Rivière in 1934-1935, as well as one taking refuge from wintry weather in a barn on March 5, 1935.¹⁰

A flurry of additional records in 1935 included the first Manitoba nest, observed by J. Pollock and J. English at Fort Whyte.¹⁰ It was built on top of an old house sparrow nest in an electrical transformer box with an entrance hole drilled by a flicker; five eggs were laid between May 4 and 12.¹⁰ Three nests in deciduous tree cavities, found by V. B. Latta at Shelley near Whitemouth, followed quickly between May 24 and July 8, 1935.¹⁰ Also at Fort Whyte, a female starling specimen was collected by A. H. Shortt on June 24, 1935; now in the Royal Ontario Museum (ROM) collection, it appears to be the oldest existing Manitoba specimen.^{13a} The earliest specimens in The Manitoba Museum's collection in Winnipeg are

two eggs collected by G. J. Smith at Fort Whyte on May 4, 1941 and four adult skins collected at various locations between 1940 and 1948.¹⁴ A voucher of a September 1938 bird from Dauphin was entered in the old museum ledger as received September 20, 1938 from Mrs. W.A. Maynard of Dauphin, but the specimen was in poor condition and presumably was discarded before the Museum moved to its present site. The B.J. Hales Museum (Brandon) holds two specimens from Ninette, a male (catalogue no. 479) and a female (catalogue no. 100) caught in a henhouse on March 28, 1938.

At least nine starling reports in 1936 included additional nest records at Shelley and Lockport, while a flock of 12 seen by C. L. Broley at Richer on June 28, 1936 was the largest number reported in Manitoba to that date.¹⁰ Farther north, a starling was collected by S. Waller 30 miles NE of Lake St. Martin on April 28, 1936; it also is in the ROM collection.^{13b, 15}

The number of reported localities continued to grow in the late 1930s while starling numbers increased rapidly. The following totals were reported by J. and A. Haak at a St. Boniface (Winnipeg) garbage dump in 1938: 15 on March 6, 56 on March 20, and more than 100 in the first week of April, followed by a fall count of 146 on October 30, dwindling to about 45 overwintering birds.¹⁰ This chronology parallels current observations of migrants in numbers increasing during March and April, and decreasing in October and November, at dumps, cattle feed lots, and other concentrated food sources.

By the end of 1939, starlings had been reported at 31 different localities in Manitoba, with nesting confirmed at eight, counting various sites within the current Greater Winnipeg area as one locality. These reports cover most of the agricultural region, plus a few locations within the southern fringe of the boreal

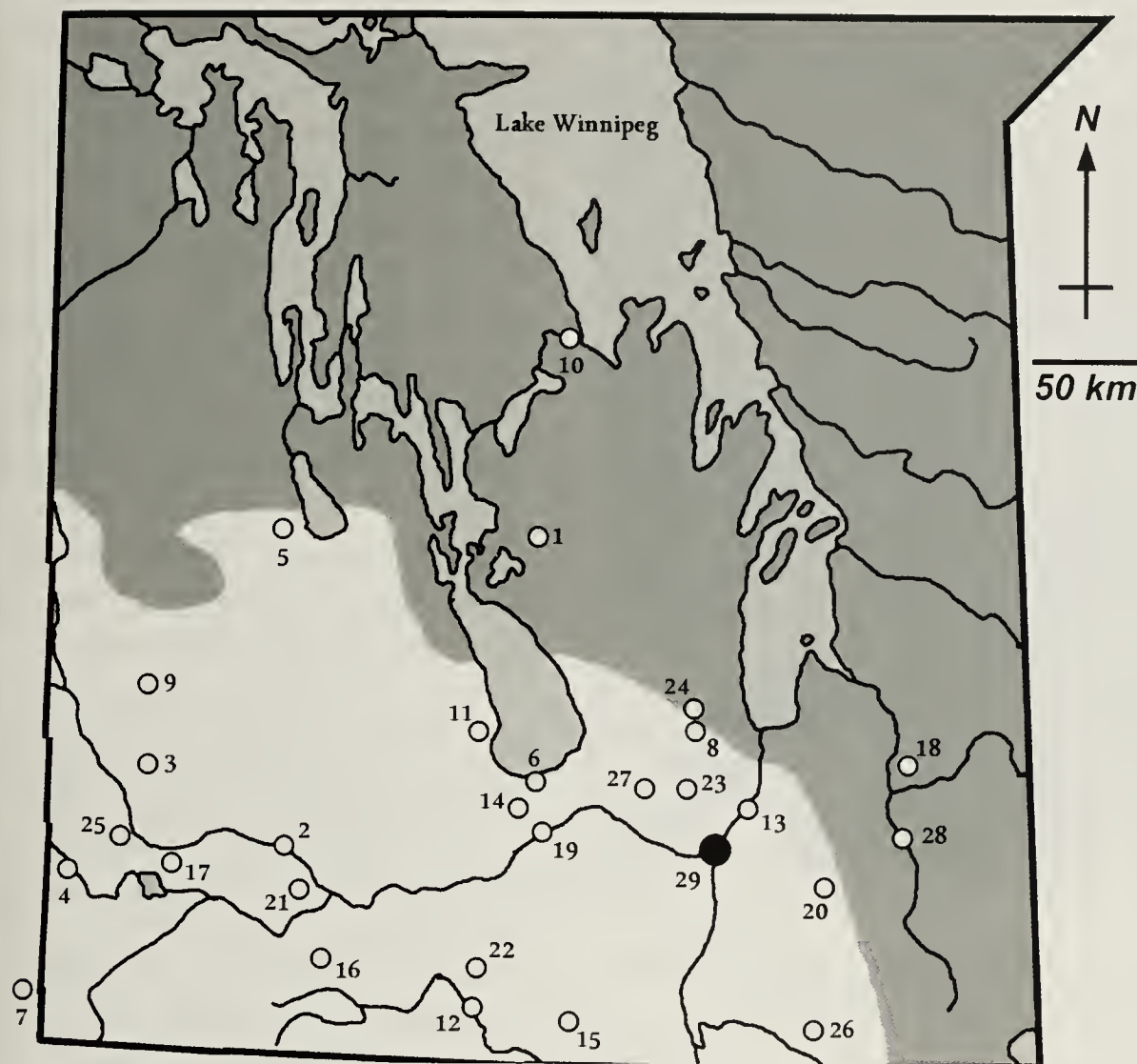


FIGURE 4: Map of localities for pre-1940 European Starling reports in Manitoba, and one in extreme southeastern Saskatchewan, numbered alphabetically with date of first record in parentheses: 1 Ashern (1939), 2 Brandon (1938), 3 Crandall (1938), 4 Cromer (1936), 5 Dauphin (1938), 6 Delta (1939), 7 Gainsborough SK (1922), 8 Gunton (1934), 9 Kelloe (1927), 10 northeast of Lake St. Martin (1936), 11 Langruth (1939), 12 La Rivière (1935), 13 Lockport (1936), 14 Macdonald (1938), 15 Morden (1938), 16 Ninette (1938), 17 Oak Lake (town) (1939), 18 Pinawa (old town-site) (1939), 19 Portage la Prairie (1937), 20 Richer (1936), 21 Rounthwaite (1938), 22 Somerset (1925), 23 Stonewall (1939), 24 Teulon (1935), 25 Virden (1939), 26 Vita (1936), 27 Warren (1939), 28 Whitemouth (1935), 29 Winnipeg (including Fort Whyte, St. Boniface, and St. James) (1926). Two northerly locations are beyond the mapped area: York Factory on the coast of Hudson Bay (1931), and Norway House at the north end of Lake Winnipeg (1939). The darker shaded and unshaded areas correspond to mostly forested and agricultural regions, respectively.

forest, and two more remote, northern sites (Figure 4). Thus the current range was more or less established, albeit at low density, before 1940.

Other indicators of rapidly increasing numbers include an estimated 100 pairs nesting in trees surrounding fields and clearings in the Whitemouth area in summer 1939 (V. B. Latta), a flock of about 150 birds following a snowstorm near Carman in late March 1942 (E. Robinson), "hundreds" on wires and in nearby oat stubble at Lenore on September 11, 1947 (A. Caldwell),

and a flock of 150 at harvest time near Wawanesa in 1947 (observer unknown).¹⁰ An extraordinary report from H. A. Hochbaum and P. Ward of the Delta Waterfowl Research Station mentions a concentration of 2000 starlings in trees on the southern shore of Lake Manitoba on October 27, 1939.¹⁰ It is possible that this number included some blackbirds.

The presence of starlings at the Morden Experimental Farm arboretum in three consecutive winters, 1938-1939 to 1940-1941, was reported by Dr. W. R. Leslie, the Farm's long-time superintendent.¹⁰

Each autumn, 40 to 60 starlings arrived in late fall, but their numbers declined to six to eight birds by late winter. Other winter reports included: "a number" of starlings feeding on clover stacks and riding on the backs of sheep, apparently for warmth, at Virden in 1938-1939 (A. B. Herkes); 18 feeding with cattle at "their feed rack in the bush" at Makinak in 1940-1941 (G. Coutts); and small numbers visiting feeders at various locations in the 1940s.¹⁰ By the 1950s, starlings were no longer noteworthy in Manitoba, except perhaps as a nuisance.

Northward range extent in Manitoba

While starlings are much more numerous in southern agricultural and urban areas than elsewhere in Manitoba, they also nest sparsely across the boreal forest to the Hudson Bay coast.¹⁶⁻²⁰ This population is mostly associated with human habitation, including many First Nation communities, as illustrated by recent findings for the Manitoba Breeding Bird Atlas (BBA).²¹ Occasionally nesting occurs far from human settlement; for example, a pair of starlings occupied a flicker nesting cavity in burned forest near Highway 6, 38 km N of Grand Rapids in June 2010 (Figure 5).

The 1931 York Factory vagrant was a forerunner of the sparse northern population, which became established more rapidly than Johnson and Cowan's map suggests.^{6, 12} At Norway House, near the north end of Lake Winnipeg, seven starlings arrived on May 5, 1939, increasing to 13 by July, and declining to four by mid-December.¹⁶ Other early records in remote Manitoba communities include two starlings accompanying eight unidentified blackbirds at Pikwitonei on May 31, 1946.¹⁰ A single starling



FIGURE 5: European Starling nest and habitat at a remote location 38 km north of Grand Rapids, Manitoba (53.5229° N, 99.3430° W), June 16, 2010. The area is recovering from the Norris Lake fire of 2008. Arrow indicates nest; inset of starling at nest hole. Photo credit: Randall D. Mooi

was observed in Churchill by R. S. Palmer on or about June 4, 1940.¹⁷ Breeding was first recorded at Churchill in 1952, when at least eight pairs nested high on this northern port's huge grain elevator.^{18, 19} Such records continue with varying numbers today; the fate of the very few that attempt to overwinter so far north is unknown.²⁰

The most northerly Manitoba starling records are in the Nejanilini Lake region, 220 km WNW of Churchill near 59.4° N latitude. The mummified remains of three starlings were found at the former

Duck Lake post of the Hudson's Bay Company on July 26, 1965, one of which is preserved at The Manitoba Museum.^{10, 22} The Manitoba BBA database includes a confirmed nesting record by K. De Smet in the same area in 2012.²¹

Current status and recent trends in Manitoba

There is little information on starling numbers in Manitoba between the early 1950s, when sightings had become routine, and the late 1960s, when the Breeding Bird Survey (BBS) and an increasing

number of Christmas Bird Counts (CBCs) started to provide systematic information on bird numbers.^{23, 24} Many authors refer to long-term, overall decline in starling numbers (or perhaps stabilization after overshooting sustainable levels) since the original population explosion; indeed, there was a suggestion of decline in Ontario as early as 1951.²⁵

The following discussion of BBS data from the late 1960s to 2013 is based on statistical analyses available at the BBS website.²³ Continent-wide trend maps for starlings show a patchwork of long-term regional increases (mostly in the western U.S.A. and Newfoundland) and decreases (mostly in the eastern U.S.A. and much of Canada). Analysis at the state and provincial level for Manitoba and nearby regions is summarized in Table 1. In Manitoba, the 1.25 per cent annual rate of decline is not quite significant (*i.e.*, there is a statistical probability of ~0.05 of an actual increase). The overall downward trend was punctuated by a temporary, partial recovery around 2008.²³

The following discussion of CBC data is based on the authors' analysis of data from the CBC website.²⁴ The Winnipeg CBC dates back to 1925, with the first starlings (six birds) being recorded in 1935, and as many as 400 in 1947, but unfortunately there are many gaps in the published record prior to the 1960s. Winnipeg CBC totals during the 1960s and 1970s were mostly in the hundreds, exceeding 1,000 for the first time in 1981 and reaching a peak of 5,317 starlings in 1988. This and other high counts over the following decade included concentrations at a former urban roost on the Disraeli Freeway bridge, 1.5 km NE of the city centre (R.F. Koes, personal communication). Winnipeg counts have been much lower in recent years, varying

TABLE 1: Breeding Bird Survey trends and confidence intervals for starlings in Manitoba and nearby regions.

PERIOD	REGION	ANNUAL CHANGE, %	2.5%	97.5%	COMMENT
1967-2013	Manitoba	-1.25	-3.20	0.32	Almost significant decline
1967-2013	Ontario	-2.00	-2.50	-1.51	Significant decline
1968-2013	Saskatchewan	-4.47	-6.03	-2.87	Significant decline
1968-2013	Alberta	-1.35	-2.48	-0.36	Barely significant decline
1967-2013	Minnesota	-1.69	-2.41	-1.02	Significant decline
1967-2013	North Dakota	0.17	-0.84	1.15	No significant trend
1967-2013	South Dakota	-0.47	-1.68	0.82	No significant trend
1968-2013	Montana	-0.07	-1.09	1.00	No significant trend

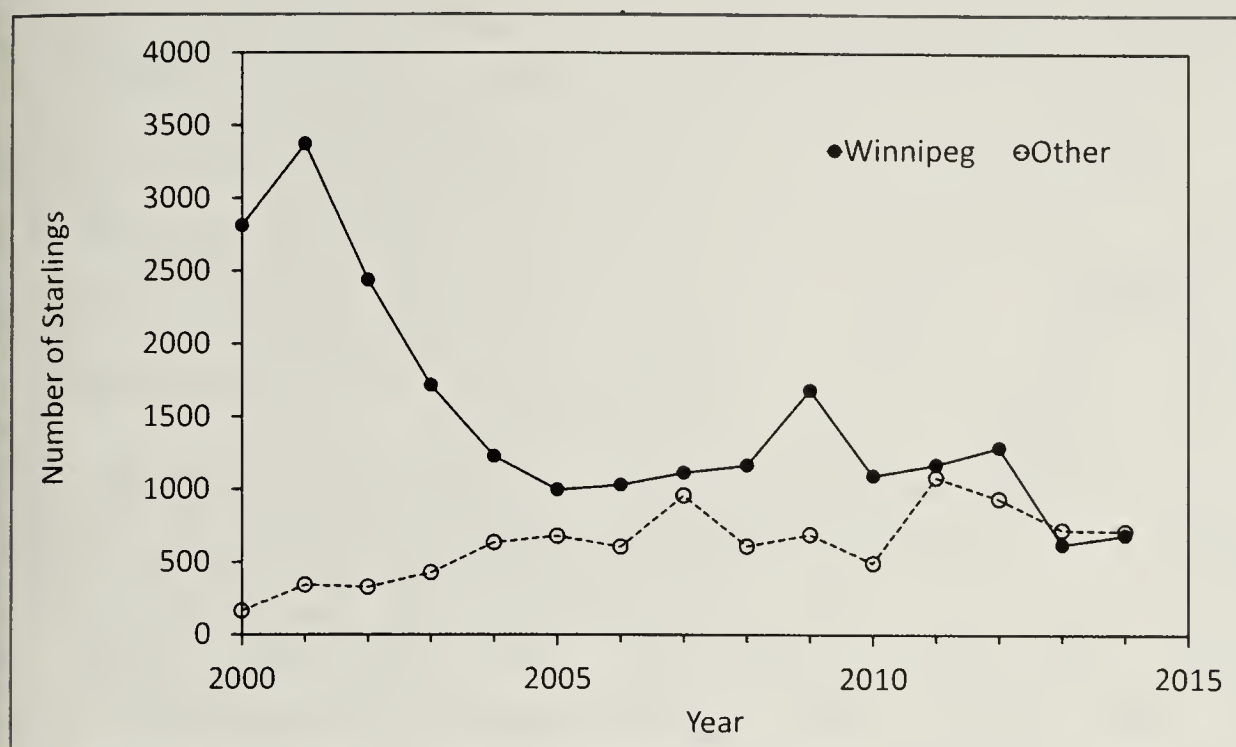


FIGURE 6: Christmas Bird Count totals of European Starlings for Winnipeg and the sum of five other Manitoba counts (Brandon, Glenboro – Spruce Woods, Delta Marsh, Oak Hammock Marsh, and Pinawa – Lac du Bonnet) between 2000 and 2014. Here, “2000” refers to counts held in December 2000 or early January 2001, and so forth.

between 997 and 1,714 (4.73 to 8.61 per party-hour of effort) over the decade from 2003 to 2012, with a subsequent dip to just 623 starlings (3.32 per party-hour) in 2013. This may have been partly due to cold conditions on the day, as well as the preceding month of exceptionally cold weather, reported in local media to be the second-coldest December in Winnipeg since 1893. In 2014, however, just 688 starlings were tallied under much milder conditions. While some of the Winnipeg totals around 1990 were impressive, they are much lower than many in the core winter range, which sometimes exceed 10,000 and occasionally 100,000 or even one million birds.²⁴

Rural Manitoba CBC totals are generally much lower than for Winnipeg, partly due to lower effort, though a few are comparable to recent Winnipeg counts, e.g., Seine Valley (60 km southeast of Winnipeg) 1,259 in 2006, Red River – St. Adolphe (just south of Winnipeg) 926 in 2007. If the relative urban and rural land areas are taken into account, however, it appears likely that wintering birds

in Winnipeg are outnumbered by those in farmland and smaller centres as a whole. Detailed comparison is difficult because of high year-to-year variability of individual counts, and because relatively few locations have long unbroken runs of consecutive annual counts. Figure 6 compares the annual count totals for the period 2000 to 2014 for Winnipeg and for the sum of five other counts scattered across southern Manitoba (from west to east, Brandon, Glenboro – Spruce Woods, Delta Marsh, Oak Hammock Marsh, and Pinawa – Lac du Bonnet). Similar trends are observed when data are expressed as detection rate (birds per party-hour), rather than total birds, because the party-hours of observer effort do not vary much from year to year (188 to 236 for Winnipeg; 188 to 250 for the five combined counts).

The trends for Winnipeg and the five other combined counts are strikingly different; in particular, the steep decline in Winnipeg CBC totals between 2001 and 2004 coincides with a gradual increase in numbers found elsewhere in southern Manitoba (Figure 6). Care

is needed in interpreting these data, because there are no close parallels among the individual counts; for example, the highest totals for each locality within the 14-year period occurred in six different years.

This is partly because rural count totals tend to be dominated by one or a few local concentrations at sites such as cattle feedlots, grain handling and processing facilities, and landfill sites, which may vary in both their attractiveness to starlings and accessibility to observers from year to year. In addition, variations in overwintering starling numbers may not reflect changes in the breeding population (see discussion of migration patterns, below). Furthermore, CBC totals are likely affected by prevailing weather conditions in late autumn and early winter, as well as on the count day itself.

Variation of Christmas Bird Count totals is evidently complex, difficult to interpret at the local or provincial level, and perhaps less clearly indicative of population trends than are Breeding Bird Surveys. This does not diminish the value of CBCs in elucidating winter distribution patterns, not to mention their educational value and sporting aspect. The following section includes some CBC comparisons with other regions.

There is little information on overwintering survival, but overall impressions are of dwindling numbers through the winter months, suggesting either high mortality or southward withdrawal, until the spring influx begins (usually in March, sometimes before the end of February). Starlings are not especially common feeder visitors, except where fat or table scraps are provided. Small numbers frequent ornamental fruit trees, especially crab apples, mostly in early winter. Supplemental

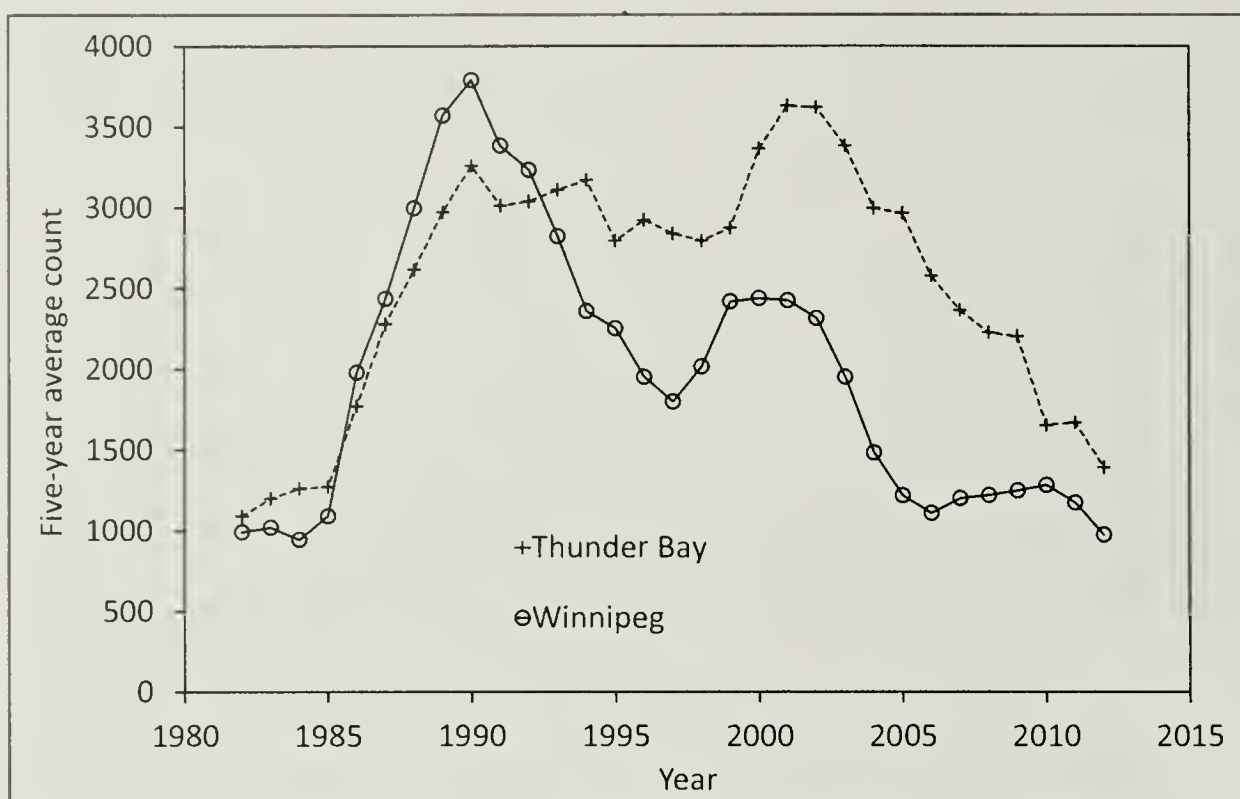


FIGURE 7: Christmas Bird Count totals of European Starlings for Winnipeg and Thunder Bay. The plotted values are five-year average counts based on data from 1980 to 2014, e.g., the 1982 values are averages of annual counts from 1980 to 1984.

warmth from household chimneys, burning garbage, livestock, or other sources seems to be an important survival factor for starlings during cold spells. Communal roosting in manmade structures also appears to favour winter survival.²⁶ It is possible that improved thermal efficiency and physical sealing of buildings, and improved garbage disposal practices, have caused a reduction of starling numbers, especially in urban areas, by reducing sources of warmth and food.

Establishment and current trends in nearby provinces

The following summaries provide a broader regional context for the Manitoba starling records, with emphasis on Saskatchewan.

Northwestern Ontario – Starlings apparently reached northwestern Ontario in the 1930s, roughly concurrent with their establishment in Manitoba.²⁵ Some mortality during a cold snap was noted at Sault Ste. Marie in December 1929.¹⁰ Four or five starlings survived the 1932-1933 winter at Port Arthur (Thunder Bay), but others apparently disappeared after heavy snowfalls there in January 1934.¹⁰ The Ontario BBA indicates

low breeding density in this region as a whole, and especially localized occurrence north of about 50° N latitude.^{25, 27} The first nesting record for the Hudson Bay coast of Ontario was at Winisk in 1967, 15 years after breeding was first recorded at Churchill.^{18, 19, 25}

Christmas Bird Count totals at Thunder Bay are usually well in excess of 1,000 birds, but dropped dramatically to 405 in 2014. Lesser numbers (sometimes exceeding 100) are tallied at smaller communities such as Kenora and Dryden.²⁴ Figure 7 reveals similar CBC trends for Thunder Bay and Winnipeg. Totals are depicted as five-year averages to reduce year-to-year fluctuations while elucidating medium-term trends. The figure shows synchronous rapid increases in the late 1980s, a broad double-peak extending into the early

21st century, then a marked decline (a few years later at Thunder Bay than at Winnipeg). Combined counts for Dryden and Kenora (not depicted) do not parallel these trends, but show a gradual increase since 2000, similar to that for Manitoba communities outside Winnipeg (Figure 6).

Saskatchewan – The overall status of starlings in Saskatchewan, as summarized by Smith, is similar to that in Manitoba: "...a common summer resident throughout the settled south, and uncommon and local in the boreal forest".²⁸ As in Manitoba, wintering birds occur mainly in urban areas and farmsteads.²⁸ Leighton *et al.*, however, commented that the starling is mostly a rural bird in the Saskatoon area, with relatively few in the city except at the municipal landfill.²⁹

As noted above, the first Saskatchewan starling sighting at Gainsborough in 1922 was also the first for the Prairie Provinces.¹⁰ Overall, however, the species became established slightly later in Saskatchewan than Manitoba, with a flurry of records between 1937 and the early 1940s (C.S. Houston, pers. comm.). Table 2 compares various milestone dates for the two provinces, which suggest an overall lag in establishment of about five years. The lag time of a decade or more between the first sighting and the first nesting record for a province is not unusual (*cf.* Ontario, sighting 1914, nest 1922; Nova Scotia,

TABLE 2: Comparison of starling milestone years for Manitoba and Saskatchewan

EVENT	MANITOBA	SASKATCHEWAN	LAG TIME (YEARS)
First reported sighting	1925	1922	-3
First northern record	1931	1963	+32
Onset of regular, annual sightings	1934	1937	+3
First wintering report	1934	1941	+7
First nest found	1935	1939	+4
First record of more than 100 birds	1938	1947	+9

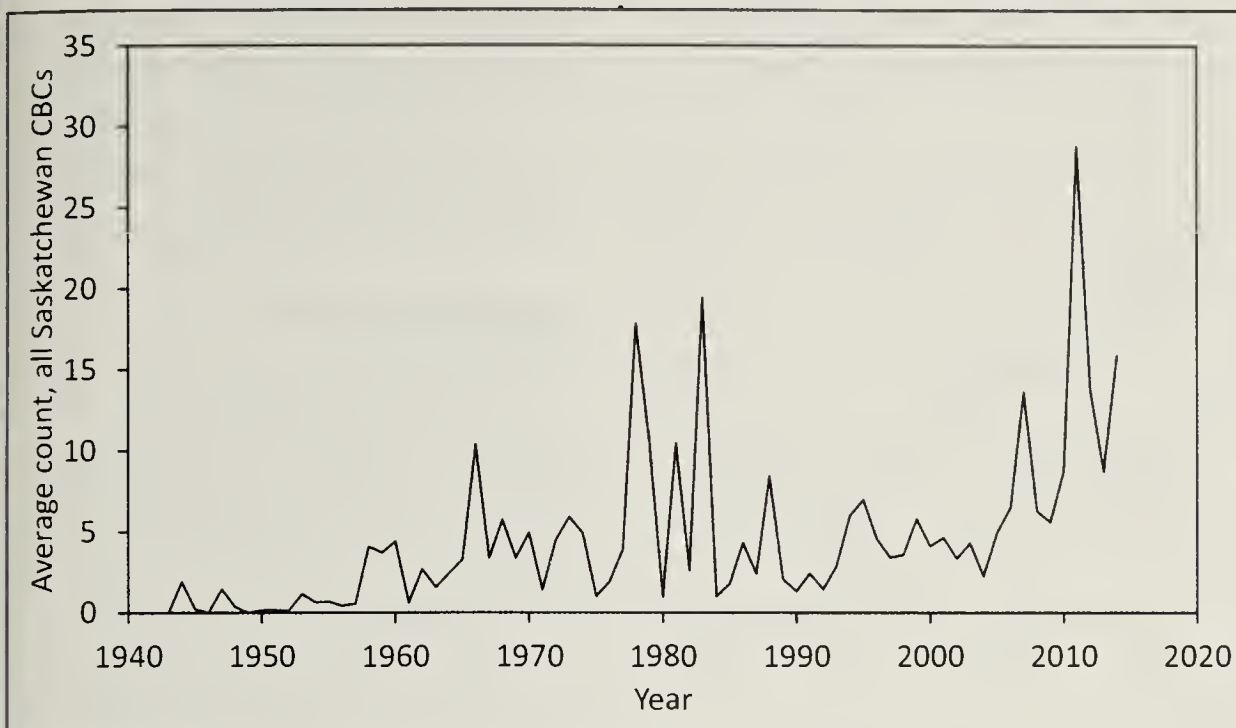


FIGURE 8: Average Christmas Bird Count totals of European Starlings for all Saskatchewan counts published in *Blue Jay* (zero counts are included in the averages).

sighting 1915, nest 1928).^{25, 30} In Alberta, however, the first provincial record involved a nesting attempt, albeit perhaps by an unmated female (see below).⁸

Records published in *Blue Jay* in 1957 indicate that starlings were becoming widespread in Saskatchewan, especially in the Saskatoon region, by the mid-1940s, but remained noteworthy in some southern areas well into the 1950s.^{31, 32} Northward progress seems to have been slower than in Manitoba (Table 2), but this

may be an artifact of sparse records. The BBS records for Saskatchewan show a statistically significant, average annual rate of decline of 4.47 per cent between 1970 and 2013 (Table 1).²³

Saskatchewan CBC results, compiled annually in *Blue Jay* since 1942, provide more information than the National Audubon Society (NAS) database.²⁴ The number of count locations varied between eight in 1942 and 105 in 2001 (plus one submitted to NAS but not *Blue*

Jay), increasing from the 1950s to the 1980s, and fluctuating between 75 and 105 (+1) since 1985. While individual counts vary greatly in observer effort, overall they provide well-distributed coverage of the southern two-fifths of Saskatchewan, plus a few northern localities. The following discussion is based on starling records for all Saskatchewan CBCs from 1942 to 2014, as published annually in *Blue Jay* and summarized in Figures 8 and 9.

The first starlings appeared on Saskatchewan CBCs in 1944: one at Indian Head, two well north at Nipawin, and no fewer than 20 at Wolseley. The species has been recorded annually since 1950, and began to approach current numbers by 1960 (Figure 8). Since 1985, the proportion of counts reporting starlings has varied between 15 and 39 per cent. Numbers are generally low compared with some Manitoba counts. Even in major urban areas (Saskatoon, Regina, and Moose Jaw), totals exceed 100 birds for less than 20 per cent of counts since 1958. The highest-ever single count total was 1,000 birds at Saskatoon in 1983, presumably an estimate of one or a few flocks at landfill sites, and oddly coinciding with a zero count in Regina the same year. The second-highest Saskatchewan count total was a more precise 822 starlings at Pike Lake in 2011. These maxima contributed to the peak provincial totals of 1204 on 13 of 62 counts in 1983 and 2,619 on 35 of 91 counts in 2011. In general, provincial totals are often dominated by one or a few high counts, contributing to the "spiky" plot of average counts in Figure 8. In this case, multi-year averaging only tends to broaden the spikes without clarifying long-term trends.

Figure 9 illustrates an attempt to tease out differences between the

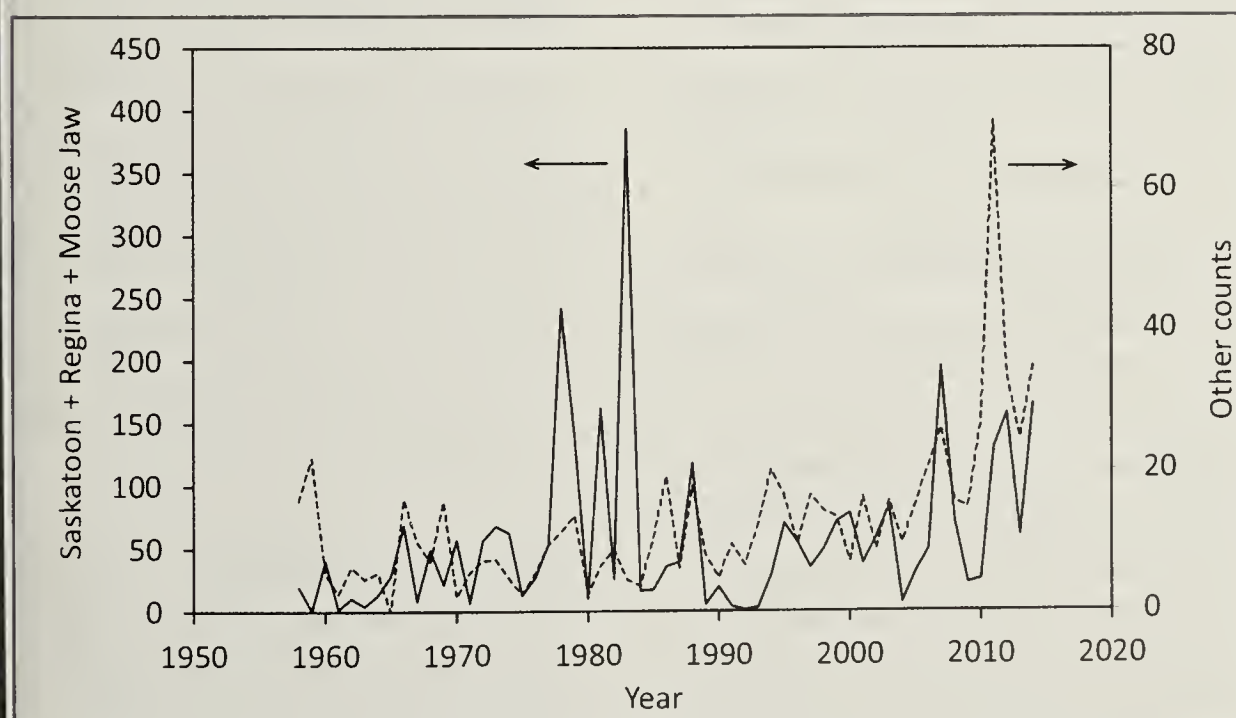


FIGURE 9: Average Christmas Bird Count totals of European Starlings since 1958 for Saskatoon, Regina and Moose Jaw combined (left axis, solid line), and for all other non-zero Saskatchewan counts (right axis, dashed line). Note that the Moose Jaw count was not held in 2002, 2003, and 2008, and the 1983 Regina count recorded zero starlings.

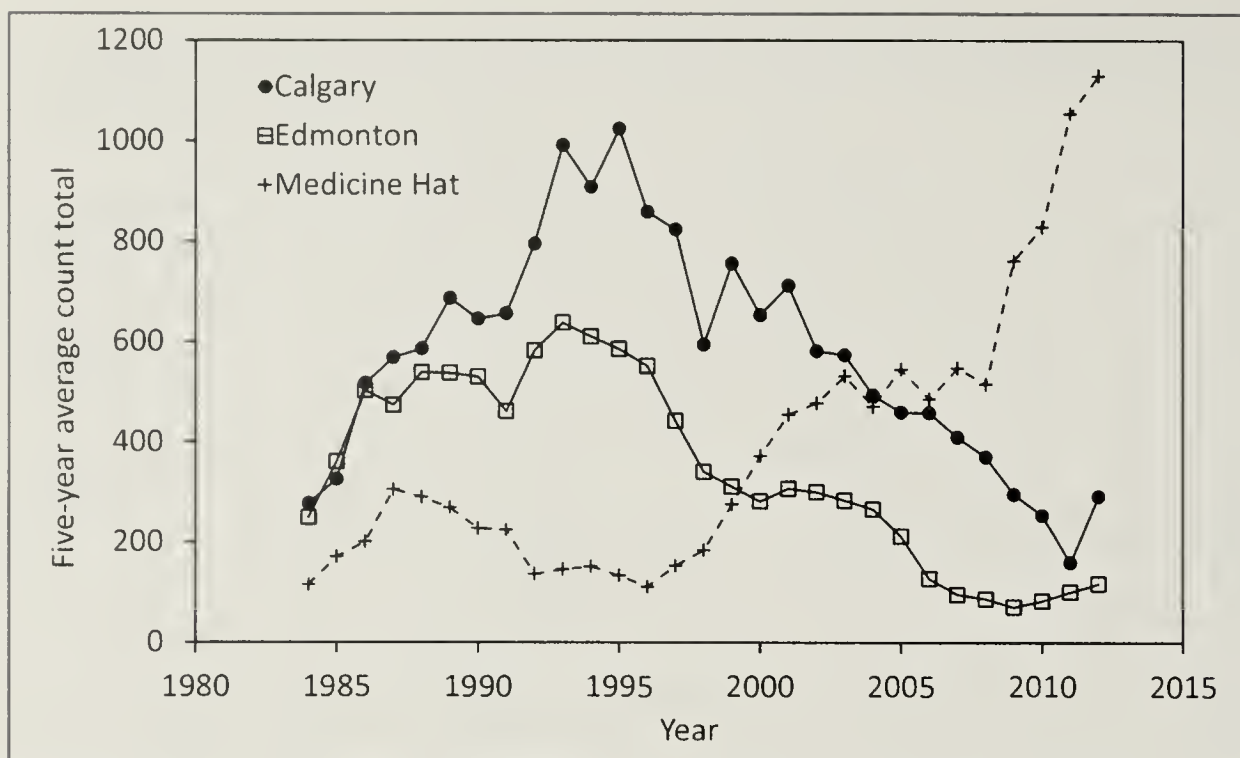


FIGURE 10: Five-year average Christmas Bird Count totals of European Starlings for Edmonton, Calgary, and Medicine Hat, Alberta, based on data from 1982 to 2014.

three counts at urban centres, noted above, and all other counts. Again, long-term trends are masked by the spiky data, but there is a suggestion of an underlying, slight increasing trend in rural, but not urban, count totals since 2000.

Alberta – The starling’s story in Alberta commenced in 1934 with a then-extralimital nesting record at Hartland, 22 km east of Camrose.⁸ The nest was discovered in a school building and reported by a teacher, Mr. Blades, who took one egg prior to June 12; six remaining eggs were collected on June 25, 1934 by F. Crossley, then submitted to the Canadian Museum of Nature by F.L. Farley.⁸ The eggs were apparently infertile, consistent with Farley’s remarks that no male starling was ever seen in the vicinity.⁸ Just 10 years later, starlings were breeding over the southern half of Alberta and westward into the Rocky Mountains.³³ By 1952 their nesting range extended north to the Peace River district and Fort Chipewyan.³² The BBS data for Alberta show a statistically significant, long-term annual rate of decline of 1.35 per cent (Table 1).²³

Our discussion of Alberta CBC

totals is limited to comparisons of smoothed-average data for three major communities – Edmonton, Calgary, and Medicine Hat (see Figure 10).²⁴ These show parallel trends for Calgary and Edmonton, with broad peaks in the 1990s and recent declines, resembling the trends for Winnipeg and Thunder Bay (Figure 6), but contrasting with a recent, strongly increasing tendency at Medicine Hat. More detailed analysis of these data, and any changes in rural Alberta counts, requires detailed local knowledge of land use related to starling concentrations. Nevertheless, Figure 10 (like Figure 6) illustrates how opposing trends may exist for different localities within a given state or province.

Nunavut and Northwest Territories – The starling’s sparse breeding range in the northern Prairie Provinces extends into southerly portions of Nunavut and the Northwest Territories (NWT), especially in the Fort Smith and Yellowknife areas, with accidental occurrence northward to the Arctic coast and islands.³⁴⁻³⁶ The first NWT record was about 42 km west of Fort Smith, April 27, 1954.³⁷ The species’ scarcity in Nunavut is illustrated by

Staniforth’s unsuccessful searches during three July visits to Baker Lake in 1997 to 1999.³⁸ Starlings are only occasionally reported on either CBCs or BBS routes in the NWT.

Establishment in nearby states

Starlings first appeared in Minnesota in 1929, were found breeding in 1931, and were widely distributed throughout the state by the end of the 1930s, albeit not abundant until the 1940s.^{7, 39} The first South Dakota record was in 1933, and starlings were well established there by 1939, reaching the Black Hills in 1946.⁴⁰ Arrival in North Dakota at Fairmont in 1935 was followed by a flurry of records between 1938 and 1942; by the 1960s starlings were fairly common in the eastern third of the state, but remained relatively scarce and local elsewhere.^{10, 41} Their spread in North Dakota was perhaps constrained by relatively dry conditions and low human population density in central and western portions of the state.

The long-term BBS trends for these three states and Montana (stable except for a decline in Minnesota) are included in Table 1.²³ North Dakota CBC totals, which are dominated by the Grand Forks (ND) – East Grand Forks (MN) count, show an increasing trend since about 1997, and a peak in 2007-2010, but with large year-to-year fluctuations.²⁴ South Dakota CBC totals also fluctuate widely, with an underlying increasing trend since the late 1990s.²⁴

Migration patterns

Starlings are partial migrants throughout their North American range; that is, some individuals of both sexes and various age categories are migratory, and individual birds may migrate in

some years but not others.¹ Kessel described the species' migratory habits as "exceptionally plastic".¹ Movements of young birds are particularly unpredictable. Migration to and from the Prairie Provinces occurs mainly in February or March to April and September to October.

Starling migration in North America tends to follow a NE-to-SW axis, *i.e.*, wintering areas are often southwest of breeding areas, possibly mimicking ancestral European migration patterns.^{1, 3, 5, 42-46} This directional preference is continent-wide, but is most pronounced in eastern North America.⁴⁴ Migration distances are quite large, with banding and recovery sites often more than 1,000 km, and sometimes more than 2,000 km apart.

Analysis by Houston of 52 Saskatchewan recoveries of starlings banded on their wintering grounds between 1938 and 1977 shows migratory movements concentrated along an axis from California and Nevada to Saskatchewan, with outlying banding localities north to British Columbia and east to Colorado.⁴² California banding yielded more recoveries in Alberta than either Saskatchewan or British Columbia.^{45, 46} South Dakota banding returns extend east to southwestern Minnesota, north to North Dakota, west to Utah, and south to Oklahoma and New Mexico, indicating substantial migratory movements within the Great Plains.⁴⁰ Records (up to 1995) mapped in the Canadian Atlas of Bird Banding indicate that Ontario breeders rarely migrate farther west than the Mississippi River.⁴³ The small number of Manitoba band recoveries in this atlas span the continent from Oregon to upstate New York, illustrating the starling's potential for long-range dispersal and for mixing between eastern, central, and western North

American populations.⁴³

Nearly 10,000 starlings banded in winter in N. Texas, central Kansas, and E. Nebraska between 2005 and 2010 yielded returns northeastward to eastern South Dakota, Minnesota, and Wisconsin, but not Manitoba.³ In contrast, 26,000 birds banded farther west in north-central Colorado between 1960 and 1974 yielded nine Manitoba and two Saskatchewan recoveries that surprisingly include one winter recovery in each province.⁵

Comparison with other invasive species

The starling's arrival and establishment is one of many dramatic changes in prairie bird populations, involving both European and North American species, since European settlement. The closest parallels are found with the House Sparrow (*Passer domesticus*) and House Finch (*Haemorhous mexicanus*).

With the exception of some Asian populations, House Sparrows are non-migratory. The Canadian Atlas of Bird Banding notes only three records of movements greater than 25 km from banding sites, with a maximum of 175 km (St. Thomas to Etobicoke, Ontario).⁴³ At one bird observatory in northeast England, nearly 600 House Sparrows were banded between 1951 and 1955, but not one was rediscovered more than about 2 km away.⁴⁷ This contrasted with starling recoveries throughout the British Isles and eastward to Scandinavia and several Baltic nations, including 13 in Norway alone, based on over 3000 birds banded at the same observatory.⁴⁷ It is therefore remarkable that the house sparrow has been almost as successful as the starling at occupying the Prairie Provinces, and even more successful worldwide.

Expanding rapidly from multiple introductions in the eastern U.S.A., House Sparrows were first noted in Manitoba at Carberry in 1892 and Winnipeg in 1894, and by 1909 were found throughout the settled portions of Manitoba and northwest as far as Athabasca Landing, Alberta.^{48, 49} Houston noted in 1978 that in northern Saskatchewan, House Sparrows were still restricted to the immediate vicinity of human settlements, and that their initial spread coincided closely with the arrival of European settlers.⁴⁸ Percy Criddle's diaries, as summarized by Houston, indicate establishment of a population nucleus at Brandon by 1897, followed by rapid dispersal throughout nearby farming country, such that house sparrows were no longer noteworthy after 1908.

It is likely that House Sparrows benefited from directly assisted travel by railway freight or supply wagon trains, as well as commensalism with settlers and their livestock. In particular, it seems unlikely that house sparrows could have arrived by 1930 at Churchill, where a breeding population persists today, without "riding the rails". Intriguingly, they preceded the first full export shipload of grain by a year, suggesting that they may initially have followed railway construction camps and supply trains northward. Jehl and Smith describe their presence as "an accidental benefit of the railroad", with their survival closely linked to food and shelter at the grain elevator.⁵⁰ F. B. Anderson, a 1931 correspondent to the *Wild Wings* newspaper column, mentioned that freight cars from the east had been seen to "disgorge several sparrows" when opened at Winnipeg.¹⁰ Wing remarked: "The belief that the sparrow was spread to some extent by riding in railroad cars hardly seems justifiable as an assumption for the

starling".⁹ It is telling that House Sparrows, unlike starlings, are largely absent from isolated communities in the Manitoba boreal forest.^{11, 20, 21}

House Finches are native to western North America, including southern British Columbia (at least since the 1930s), but those in the Prairie Provinces are descended from birds released at Long Island, New York in 1940.^{51, 52} While these birds are almost as closely tied to human habitation as are house sparrows, their spread has been facilitated by significant mobility and migratory behaviour – more so than in the British Columbia population.⁴³ Key dates in the House Finch's Manitoba history are 1983 (first sighting), 1991 (first nest record), and 1992 (first CBC record). Their status was described as "still rapidly evolving" in 1995.⁵³ The situation is now more stable, as indicated by Winnipeg CBC totals fluctuating between about 200 and 600 birds (1 to 3 per party-hour of observer effort) since 2000.²⁴ They are largely restricted to urban areas and smaller communities within the agricultural portion of Manitoba, with the boreal forest forming a substantial barrier to further expansion.^{11, 21} There is some indication of migratory behaviour in outlying populations, and at least local seasonal movements within urban populations, but detailed analysis is beyond the scope of this paper.

Another exotic species, the Eurasian Collared-Dove (*Streptopelia decaocto*) has recently arrived in the Prairie Provinces, following rapid north-westward expansion from Florida after introduction in the Bahamas.⁵⁴ Range expansion seems to be linked to strong dispersal movements by immature birds, whereas adults appear to be sedentary. After an unconfirmed record in Winnipeg in 2000, this species was first confirmed in

Manitoba at Holland in 2003, with the first nesting record for the province at Lyleton in 2005.⁵⁵ The dove's arrival in Saskatchewan was slightly earlier, in 1998, with CBC records annually since 1999, and the first breeding record in 2001.⁵⁴ Detailed discussion would be premature, beyond noting that this dove is currently more firmly established as a year-round resident in Saskatchewan and Alberta than in Manitoba, based on recent seasonal reports in *North American Birds*, Manitoba BBA records, and CBC data.^{21, 24}

The stories of other exotic species in Manitoba are complicated by multiple introductions (Gray Partridge, *Perdix perdix*; Ring-necked Pheasant, *Phasianus colchicus*; Wild Turkey, *Meleagris gallopavo*), supplemental feeding and artificial shelter (Wild Turkey), and a combination of obscure history and partial domestication (Rock Pigeon, *Columba livia*).¹¹

Summary


This article provides the first detailed account of the arrival, establishment, and current status of the European Starling in Manitoba, discussed in a broader regional context. The species became established rapidly across the Prairie Provinces and beyond, despite early predictions that "the area of the Great Plains, with its scarcity of suitable nesting sites, will undoubtedly retard the westward advance."⁵⁶ Following plausible but unconfirmed reports in the 1920s, starling records in Manitoba became increasingly frequent in the mid-to-late 1930s, with the first confirmed nesting in 1935 and the first count of more than 100 birds in 1938. By about 1950, the species had attained something close to its current status of range and abundance in

Manitoba. Breeding Bird Survey and Christmas Bird Count data reveal a patchwork of increasing and decreasing trends and fluctuations at local and regional levels. Wintering numbers are linked in part to variations in winter severity and to agricultural and waste-disposal practices that provide supplementary food and warmth.

Acknowledgements

We thank Ken D. De Smet, Marty Drut, Michel Gosselin, C. Stuart Houston, Rudolf F. Koes, and Spencer G. Sealy for helpful information. Ed Huisman kindly permitted use of the photograph in Figure 2. The Manitoba Museum Foundation provided funding for part of this project to RDM.

- 1 Kessel B (1953) Distribution and migration of the European Starling in North America. *The Condor*, 55:49-67, and references therein.
- 2 Johnson RJ, Glahn JF (2005), European starlings and their control. Internet Center for Wildlife Damage Management, <http://icwdm.org/handbook/birds/EuropeanStarlings.asp>.
- 3 Homan HJ, Thiele JR, Unrein GW, Gaukler SM, Slowik AA, Penry LB, Linz GM (2012) Band encounters of wintering European starlings captured in Kansas, Nebraska, and Texas. Proceedings of the 14th Wildlife Damage Management Conference, 124-128.
- 4 Ransome DB (2010) Investigation of starling populations in British Columbia and assessment of the feasibility of a trapping program in the lower mainland. Report to British Columbia Blueberry Council, Abbotsford BC.
- 5 Royall WC Jr, Guarino JL (1976) Movements of starlings in north-central Colorado, 1960-1974. *North American Bird Bander* 1:58-62.
- 6 Johnson SR, Cowan IM (1974) Thermal adaptation as a factor affecting colonizing success of introduced Sturnidae (Aves) in North America. *Canadian Journal of Zoology*, 52:1559-1576.
- 7 Roberts TS (1932) The Birds of Minnesota. University of Minnesota Press, Minneapolis, MN, Vol. II, pp. 168-171.
- 8 Canadian Museum of Nature, Ottawa, Specimen CMNAV E2191 and notes on

- file, provided by M. Gosselin. See also: Farley FL (1935) The European starling (*Sturnus vulgaris*) in Alberta. *Canadian Field-Naturalist*, 49:119. And: Kalmbach ER (1936) Additional note on the presence of the European starling at Camrose, Alberta. *Canadian Field-Naturalist*, 50:102-103.
- 9 Wing L (1943) Spread of the starling and English sparrow. *Auk* 60:74-87.
- 10 Mooi, RD, Taylor P, Parsons RJ (2016) An annotated list of starling (*Sturnus vulgaris*) records reported in 'Chickadee Notes' (CN) of The Manitoba/Winnipeg Free Press and 'Wild Wings' (WW) of The Winnipeg Tribune from 1926 to 1971. Available by e-mail from the authors.
- 11 Manitoba Avian Research Committee (2003) The Birds of Manitoba. Manitoba Naturalists Society, Winnipeg, MB; see, in particular, pages 20 and 309.
- 12 Lloyd AC (1934) A northern record for the starling, *Sturnus vulgaris*. *Canadian Field-Naturalist*, 48:82.
- 13 Royal Ontario Museum, Toronto, catalogue numbers (a) 29723, (b) 36.5.11.4.
- 14 The Manitoba Museum, Winnipeg, catalogue numbers MM 1-21-448 (two eggs), MM 1-2-2236, MM 1-2-2244, MM 1-2-2347, and MM 1-2-2493.
- 15 Shortt TM, Waller S (1937) The birds of the Lake St. Martin region, Manitoba. *Contributions of the Royal Ontario Museum of Zoology* No. 10:1-51.
- 16 Durant PW (1940) The European Starling, *Sturnus vulgaris*, at Norway House. *Canadian Field-Naturalist* 54:45.
- 17 Grinnell LI, Palmer RS (1941) Notes on the birdlife of Churchill, Manitoba. *Canadian Field-Naturalist* 55:47-54.
- 18 Beckett E (1953) Starling nesting at Churchill, Manitoba. *Canadian Field-Naturalist* 67:44.
- 19 Mayfield H (1954) Starlings nesting at Churchill, Manitoba. *Auk* 71:199.
- 20 Jehl JR Jr (2004) Birdlife of the Churchill region: status, history, biology. Trafford Publishing, Victoria, BC.
- 21 Manitoba Breeding Bird Atlas, 24-200 Saulteaux Cr., Winnipeg, MB R3J 3W3; <http://www.birdatlas.mb.ca/>.
- 22 The Manitoba Museum, Winnipeg, catalogue number MM 1.2-2747.
- 23 Sauer JR, Hines JE, Fallon JE, Pardieck KL, Ziolkowski DJ Jr., Link WA (2014). The North American Breeding Bird Survey, Results and Analysis 1966-2013. Version 01.30.2015, USGS Patuxent Wildlife Research Center, Laurel, MD. This and related tools were accessed at <http://www.mbr-pwrc.usgs.gov/bbs/> on 22 November 2015.
- 24 National Audubon Society (2010) The Christmas Bird Count Historical Results [Online]. Available <http://www.christmasbirdcount.org> [accessed on January 16, 2016].
- 25 Cadman MD, Eagles PFJ, Helleiner FM, eds. (1987) Atlas of the breeding birds of Ontario. University of Waterloo Press, Waterloo ON.
- 26 Dolbeer RA (1982) Migration patterns for age and sex classes of blackbirds and starlings, *Journal of Field Ornithology*, 53:28-46.
- 27 Cadman MD, Sutherland DA, Beck GG, Lepage D, Couturier AR, eds. (2007). Atlas of the breeding birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, ON.
- 28 Smith, AR (1996) Atlas of Saskatchewan Birds, No. 4, Manley Callin Series (Special Publication No. 22). Nature Saskatchewan, Regina and Saskatoon Nature Society.
- 29 Leighton AL, Hay J, Houston CS, Roy, JF, Shadick S (2002) Birds of the Saskatoon Area, No. 5, Manley Callin Series (Special Publication No. 23). Environment Canada and Nature Saskatchewan, Regina.
- 30 Tufts RW (1986) Birds of Nova Scotia, 3rd edition. The Nova Scotia Museum, Halifax.
- 31 Houston S (1957) Starling records. *Blue Jay*, 15:9.
- 32 Niven W, Hubbard J, Barker E, Osborne C, Bardal D, McArton H (contributors) (1957) More starling records. *Blue Jay*, 15:101-102.
- 33 Salt WR, Salt JR (1976) The Birds of Alberta. Hurtig, Edmonton.
- 34 Godfrey WE (1986) The Birds of Canada, revised edition. National Museum of Natural Sciences, Ottawa.
- 35 Richards JM, Tymstra YR, White AW (2002) Birds of Nunavut: a checklist, a *Birders Journal* publication (24-page insert in volume 11).
- 36 Sealy SG (1969) A northern North American record of the starling, *Arctic* 22: 444.
- 37 Fuller WA (1955). First record of the starling in the Northwest Territories. *Canadian Field-Naturalist*, 69:27.
- 38 Staniforth RJ (2002) Effects of urbanization on bird populations in the Canadian central Arctic, *Arctic* 55: 87-93.
- 39 Janssen RB (1987) Birds in Minnesota. University of Minnesota Press, Minneapolis.
- 40 South Dakota Ornithologists' Union (1991) The birds of South Dakota, 2nd edition, Aberdeen SD.
- 41 Stewart RE (1975) Breeding birds of North Dakota. Tri-College Center for Environmental Studies, Fargo, ND. Available online at Northern Prairie Wildlife Research Center, www.npwrc.usgs.gov/resource/birds/bbofnd.
- 42 Houston CS (2007) Starlings banded on wintering grounds and recovered in Saskatchewan. *Blue Jay*, 65:34-36.
- 43 Canadian Atlas of Bird Banding, Environment Canada, <http://www.ec.gc.ca/aobc-cabb/>. Based on records from 1921 to 1995; as modified 2 April 2012.
- 44 Burt HE, Giltz ML (1977) Seasonal directional patterns of movements and migrations of starlings and blackbirds in North America, *Bird-Banding* 48:259-271.
- 45 Royall WC, Guarino JL, Zajanc A, Siebe CC (1972) Movements of starlings banded in California, *Bird-Banding* 43: 26-37.
- 46 Sadler TS, Myres MT (1972) Alberta birds 1961-1970, Provincial Museum of Alberta, Natural History Section, Occasional Paper No. 1, Edmonton.
- 47 Ennion, E (1959) The House on the Shore: the story of Monks' House Bird Observatory. Routledge and Kegan Paul, London, England, 200 pp.
- 48 Houston CS (1978) Arrival of the house sparrow on the prairies. *Blue Jay*, 36:99-102.
- 49 Houston CS (1979) Further notes on the arrival of the house sparrow. *Blue Jay*, 37:53-54.
- 50 Jehl JR Jr, Smith, BA (1970) Birds of the Churchill region, Manitoba. Special Publication No. 1, Manitoba Museum of Man and Nature, Winnipeg.
- 51 Bancroft J, Parsons RJ (1991) Range expansion of the house finch into the Prairie Provinces. *Blue Jay*, 49:128-136.
- 52 Parsons RJ, Horton JI (1993) First nesting records of the house finch in Manitoba. *Blue Jay*, 51:113-121.
- 53 Taylor P, Koes RF (1995) Rare and marginal winter passerine birds in Manitoba. *Blue Jay*, 53:148-158.
- 54 Houston CS, Luterbach B (2004) Northward extension of Eurasian collared-dove in Saskatchewan. *Blue Jay*, 62:28-30.
- 55 Koes RF (2008) Additions to the bird list of Manitoba (1997 – 2007). *Blue Jay*, 66:139-147.
- 56 Cooke MC (1928) The spread of the European starling in North America (to 1928). *United States Department of Agriculture, Circular No. 40* (9 pages). 

CHANGES TO OUR PUBLICATIONS AND MEMBERSHIP STRUCTURE

At the June Annual General Meeting, ratification of the proposed changes was passed. We wanted to reprint this section to remind you of the changes to the membership fee structure and the timing of its effect.

With this format change for the Blue Jay, we will be able to offer an electronic version to our members in the very near future. The electronic version, once available, will be in full colour. Once our website is equipped (possibly by October 2016), members will be able to login with a personalized ID and password to be able to view the material.

Annual membership fees will remain at the current rate until **November 2016**. Memberships received after November 1 will be enrolled under the new fee structure and receive a 14-month membership.

All existing three and five-year memberships will be honoured until they expire. Three and five-year memberships will no longer be offered.

If you have any questions, concerns, or if are seeking more information, please contact Nature Saskatchewan at 1-800-667-4668 (toll-free)/(306) 780-9273 or info@naturesask.ca.

The following were the changes ratified in June:

All memberships will be based on an annual subscription from January 1 to December 31 of the calendar year.

1. With the transition to an annual membership, three and five-year memberships will be phased out.
2. Existing Life memberships will endure and remain unchanged.
3. New Life memberships will be offered at an increased fee.
4. Student and Senior memberships will be offered at a discounted fee for the print version. Individual and Family will remain separate categories.
5. The fee structure will be based on being an "electronic" subscriber or a "print" subscriber. "Print" member fees are based on print and postage costs.
6. Institutional and Foreign membership costs will increase.
7. Fee changes are as follows:
 - Individual \$25/yr – Electronic
Individual \$40/yr – Print
 - Family \$30/yr – Electronic
Family \$45/yr – Print
 - Student \$25/yr – Electronic
Student \$35/yr – Print
 - Senior \$25/yr – Electronic
Senior \$35/yr – Print
 - Organization/Institution \$30/yr – Electronic
Organization/Institution \$60/yr – Print
 - Foreign/Outside Canada \$30/yr – Electronic
Foreign/Outside Canada \$60/yr – Print

www.naturesask.ca
www.facebook.com/naturesask
www.twitter.com/naturesask
info@naturesask.ca

#206 - 1860 Lorne St
Regina, SK S4P 2L7

Nature

SASKATCHEWAN

The Voice of Nature
FOR SASKATCHEWAN

Without your voice, ours becomes a whisper. Help us protect Saskatchewan's ecosystems and wildlife.

NAME: _____
ADDRESS: _____
CITY: _____ PROVINCE: _____ POSTAL CODE: _____
PHONE: _____ EMAIL: _____

Would you like to subscribe to all electronic communications? ☐ Yes ☐ No
Would you like to receive our e-newsletter? ☐ Yes ☐ No

I wish to become a monthly donor & join the Nature Savings Plan
(Income tax receipts are issued annually)

Amount: \$ _____

I wish to show my support through a one time tax-deductible donation
(Income tax receipts are issued immediately)

MY DONATION IS IN SUPPORT OF:

- | | |
|---|--|
| <input type="checkbox"/> General Programs | <input type="checkbox"/> Last Mountain Bird Observatory |
| <input type="checkbox"/> Scholarship Fund | <input type="checkbox"/> Stewards of Saskatchewan Programs
(OBO, POS, SFS, RPR) |
| <input type="checkbox"/> Nature Legacy Fund | <input type="checkbox"/> Land Conservation Fund |

I wish to enroll/renew my membership

CATEGORY

- | | |
|----------------|---|
| Individual | <input type="checkbox"/> \$25 |
| Institution | <input type="checkbox"/> \$30 |
| Family | <input type="checkbox"/> \$30 |
| Senior 64+ | <input type="checkbox"/> \$20 |
| Student | <input type="checkbox"/> \$15 |
| Outside Canada | <input type="checkbox"/> \$30 |
| Life | <input type="checkbox"/> \$750 (You will receive a tax receipt for \$725) |

FEE TOTALS:

Nature Saskatchewan Membership \$ _____
Nature Saskatchewan Donation \$ _____

TOTAL \$ _____

I wish to pay by: ☐ Cheque/Money Order payable to Nature Saskatchewan ☐ Visa ☐ MasterCard

Cardholder's Name: _____ Signature: _____
Card Number : _____ Expiry Date: _____



Waskesiu River in Prince Albert National Park. Photo credit: Donna Bruce

HUMAN NATURE

Donna Bruce, Past President
Nature Saskatchewan Board of Directors

It's been a long-time connection — a lifetime almost. Holidays in Prince Albert National Park were a very big deal for my family. We made the long drive from Regina almost every year. The beaches and the tennis courts were the big draw, but the forest trails and evening drives in search of wildlife became part of the pleasure of the place. No wonder, then, that I jumped at the chance to work as a park naturalist there — five summers and two winters! And all these years later, it is still the place I love best in the world.

It's a large park, with many places that hold memories of wonders and delights. One of my favourites is the Waskesiu River. Located just a few miles from the town site, it's an easy visit. A short boardwalk trail to a footbridge over the river offers a shady forest walk, and two viewing platforms at the river's edge. No matter what time of year you visit, there is much to enjoy.

On a hot summer's day, the first thing you are likely to notice is insect life! Mosquitoes and flies abound. Colourful dragonflies are on patrol, and fluttering over the river you may

spot lovely river jewelwing damselflies, with their brilliant green bodies, black-spotted wings and fluttery flight (thank you, Dave Halstead, for introducing us to these lovely creatures at the meet in Prince Albert!).

Entering the trail you are quickly immersed in spruce forest, punctuated by balsam fir and the odd paper birch. This is a world of mossyards and lichen, Labrador tea, horsetails, wintergreens, bearberry, dogwood and club mosses, where colours are rich, and blooming wildflowers are small, but elegant.

Besides the inevitable scolding from a red squirrel at almost any time of year, there will almost always be wildlife or some sign of it here. The Waskesiu River is a wildlife magnet. It's a fine place for families of goldeneyes, and fishing birds such as pelicans, herons and kingfishers. Muskrat and beaver are often seen, and mink more rarely, though signs of their presence are there to be seen. Deer may come to drink and browse in the still of the morning (I once had a doe stand on the hillside and watch me quietly as I walked past on the trail — quite unexpected and magical).

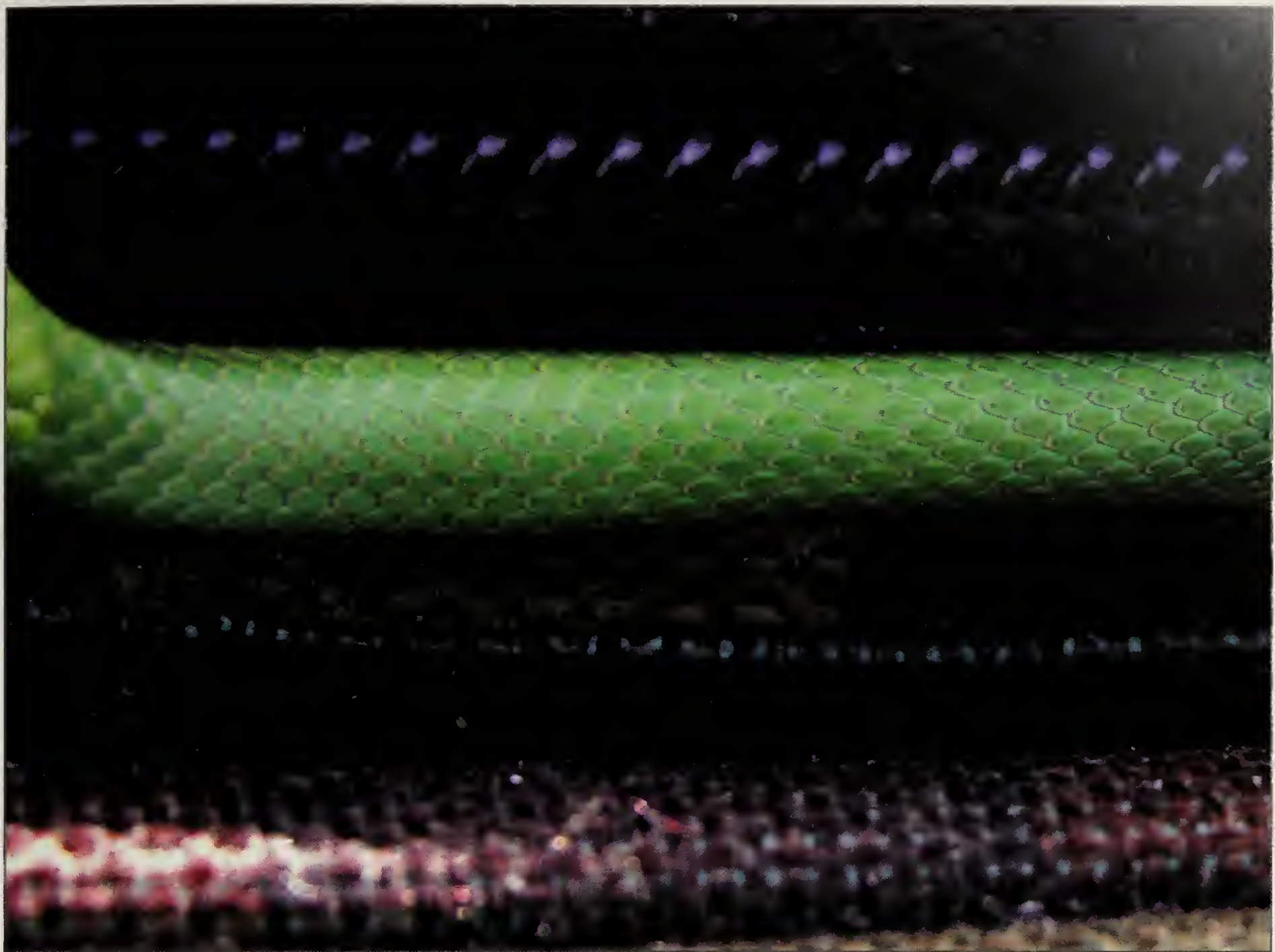
From many visits over the years, two stand out particularly. One was an off-season visit — fall, I think. In the quiet of the day I could hear something in the water, moving down

the river toward me. Curious, I found an opening in the trees and spotted a writhing mass of brown in the water. Soon the bodies of several otters revealed themselves — a family group was roiling playfully in the river current. In a few moments they were gone downstream. You would never know they had been there.

The second encounter happened just last week. As I stood on the footbridge listening to the birds, a small brown long-tailed body came down the riverbank trail toward me. Though I've only ever seen them once before, I recognized those little rounded ears with the white edging — it was a pine marten! It hesitated, then continued to the bridge and slipped below it. I thought that was that. A moment later there was a scratching of claws on the wood behind me. I turned to watch that marten skitter all the way across the bridge. Then it disappeared into the forest.

Such are the blessings of this national park — a place to be treasured.

Human Nature is an ongoing series for Blue Jay. In each issue, we will feature someone's favourite/memorable nature spot in Saskatchewan. Please contact editor Annie McLeod if you are interested in this opportunity. 🐦



This issue's mystery photo was submitted by Kim Mann in Regina, Saskatchewan



Photo credit: Richard Staniforth



Photo credit: Richard Staniforth

Mystery Photo Summer 2016 (left)

ANSWER:

Lady fern is a common fern throughout Saskatchewan and Manitoba. In spring, the leaf buds or fiddleheads appear from an underground stem (rhizome). The leaf stalks (petioles) are clothed in black scales, which can be seen in the photograph. These are tough and waterproof, and probably protect the delicate young leaf from drying and from herbivores. In the popular edible Ostrich fern, these scales are brown and cause unpleasantness if not completely removed before the fiddleheads are eaten.

- Richard Staniforth, Winnipeg, Manitoba

Mystery Photo Fall 2016 (above)

THE QUESTION IS: What creature is this? Hint: This species turns blue when it dies; however, it is normally this beautiful shade of green. Reaching approximately 20 inches at maturity, this creature is very hard to spot in the wild.

Please send your answers to Blue Jay editor Annie McLeod at bluejay@naturesask.ca or by lettermail: 3017 Hill Ave. Regina, SK S4S 0W2.

Those with correct answers will be entered into a draw for a prize from Nature Saskatchewan.

Have you taken a picture that may make for a good mystery photo? Send it to Annie using the contact information above.

160918 19:50 6012



Nature SASKATCHEWAN

206 – 1860 Lorne Street
Regina, SK S4P 2L7

Publication Mail Agreement # 40063014
Return Undeliverable Canadian Addresses To
Administration Centre Printing Services
111-2001 Cornwall Street
Regina, SK S4P 3X9
Email: adminprint@sasktel.net